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dear reader: letters from a family farm OVERCOMING AG CHALLENGES

In our industry, we face a lot of external threats – and we seem to have a bit of a cyclone developing with the disease and trade relations challenges currently in the air.

On the disease front, the big threat on everyone's radar is African swine fever (ASF). As of April 25, for example, the global industry grappled with 1,320 ongoing outbreaks, the **World Organization for Animal Health** said. China reported 58 per cent of total global losses between April 12 and 25, but countries throughout Africa, Asia and Europe were also dealing with ASF.

On a smaller scale, we continue to be hit with other outbreaks, such as porcine epidemic diarrhea (PED).

And we still await progress on a U.S.-China trade deal. In the meantime, Canada faces uneasy trade relations with China, too, including China's blockage of Canadian canola shipments and China's early May suspension of pork imports from two Quebec-based companies.

As we try to navigate these rocky waters, the old saying "Knowledge is power" is one that sticks in my mind.

In every edition of *Better Pork*, we aim to provide timely information that is helpful for your farm business and family.

This month, for example, department writer **Dr. Jessica Law** provides a detailed overview of how to deal with a PED outbreak. (You should still obtain advice and support from your swine advisory team in the event of an outbreak, of course.) On the marketing side, department writers **Moe Agostino** and **Abhinesh Gopal** provide an update on the effects of ASF on global pork supplies and what this situation might mean for the market longer term.

Alongside the power of the written word, though, I know the value of inperson conversations.

We can chat with our vets and nutritionists about herd health. We can talk with our suppliers and truckers about their biosecurity best practices. We can connect with market analysts about their market outlooks and steps we can take to mitigate our risks. We can swap stories with other producers about our experiences.

This month, our industry has a couple of great pork-focused events to help facilitate these conversations: the Alberta Pork Congress and the Ontario Pork Congress.

I hope you can attend your local congress and engage with our community! BP

(Indrea)



Ontario's pork industry gives back to the local community through the annual Hog Jog race. See the section beginning on page 39 for more information on the Ontario Pork Congress and "Alt. Pork Congress gets better each year" on page 61 for details on the Western Canadian event.



WILD PIGS A WILD CARD FOR ASF

As African swine fever (ASF) continues to spread through China and Europe, many people are still in the dark about the disease risk from wild pigs.

"In Eastern Europe, the presence of ASF in the wild boar population creates complications for the control and eradication of the virus," said Dr. Egan Brockhoff, managing partner at Prairie Swine Health Services in Red Deer, Alta.

"How do you surveil (these animals) and prevent their movement from location to location?"

Should ASF come to Canada and enter the wild pig population, those animals could become a risk reservoir for the disease.

"The problem in Canada is that there's no clear jurisdiction over wild pigs, so we don't have a formal provincial or federal eradication plan," said Brockhoff.

"The Canadian Pork Council is working with the Canadian Food Inspection Agency (CFIA) and meeting with stakeholders to discuss this, and I see provincial pork boards engaging somewhat with provincial governments, but we need to do more.

"We need a national strategy to deal with (wild pigs). Apart from the disease risk, they are destructive to land, crops, habitats and endangered species. This is not just a problem for the pork sector; it's a societal problem that must be addressed," he added. BP

FACIAL RECOGNITION FOR SWINE FARMS

Producers may soon be able to find out how their pigs are feeling through the animals' facial expressions.

Researchers from Scotland's Rural College (SRUC) in Edinburgh and the Centre for Machine Vision in the Bristol Robotics Laboratory at University of the West of England, Bristol are working on a tool to analyze individual animal faces using 3D technology, a March SRUC release said.

This technology could help producers detect sick or injured animals, supporting welfare initiatives on farms.

"We hope to deliver a truly animal-centric welfare assessment technique that could tell us something about the importance each animal places on its own particular experiences," Dr.

Emma Baxter, a senior researcher of animal behaviour, welfare and veterinary science at SRUC, said to Better Pork in an email statement.

Pigs can signal their intentions to other hogs through different facial expressions, previous SRUC research showed.

The facial recognition technology has proven to be 97 per cent accurate in identifying individual expressions, the release said. The next step is to use machine vision to automatically recognize facial expressions associated with core emotions, including happiness and distress. BP



list, and there is speculation that

pork could be on that list," Gary

Producers "have (felt) the effects

AkaratPhasura/iStock/Getty Images Plus photc Stordy, director of government and corporate affairs for the Canadian **Pork Council**, said to *Better Pork*.

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THE PROBLEM OF TRADE UNCERTAINTY

Unpredictability adds spice to a relationship, they say. But when this uncertainty happens around trade deals like the United States-Mexico-Canada Agreement (USMCA), it can really kill the mood.

Though Canadian, American and

Mexican government officials signed the deal on Nov. 30, ratification has been delayed by



of a trade war for the last year, even without tariffs on Canadian pork." If Canada should place a high retaliatory

factors like the ongoing U.S. tariffs on Canadian steel and aluminum. Canada responded with tariffs of its own and the situation equates to some sleepless nights for pork producers.

"We've been advised that Canada is looking at rotating or changing the products on the retaliatory tariff

tariff rate on U.S. pork imports, the levy could interrupt that integrated market, create uncertainty in the supply chain and possibly affect producer prices here.

Uncertainty might fuel the fire of romance but, if it intrudes on valuable trade connections, the honeymoon may be over. BP



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(E CONTROL OF ON-FARM DATA

by KATE AYERS

Swine producers use a range of technologies on their farms to increase efficiency. Learn how to maximize the benefits from your data.

In the ag industry, and especially in the swine sector, producers can collect a dizzying amount of data from their operations. As a result, farmers can face challenges when they try to manage, interpret and best use this information.

However, when properly managed, operational and environmental data can benefit all types of swine production systems.

Data collection systems can help producers achieve an efficient and low-cost barn environment to raise more productive pigs, says Jeff Schoening, an AGCO Protein (AP) technical sales manager of Automated Production systems.

"We can look at historical data and compare pig performance with conditions in the barn to make more educated decisions on what the right environmental settings are to get maximum production out of the facilities," he says.

AP systems provide farmers with machines and equipment, including telemetry-based tracking systems, that help farmers keep up with the industry's changing demands, the company's website says. The Canadian regional office is in Elmira, Ont.

To help producers navigate the complex realm of data collection, *Better Pork* speaks with industry experts to gain a better understanding of the best data to collect and the types of platforms available for producers to use. We also review privacy protection and how production data could provide another income source for farmers.

What data is best?

Through proper planning, farmers can extract the most valuable information to propel their businesses forward. The type of data producers should gather and review will vary from farm to farm and will depend on the production system.

"The data that is most important for farmers to collect is ... directly related to the productivity and profitability of their animals," says Dr. Hyatt Frobose of JYGA Technologies, Inc. He is a swine nutrition specialist and U.S. territory manager.

"That collection is going to depend a little bit on the stage of production and the specific role a producer or worker plays in the production system."

JYGA Technologies is a family-run equipment manufacturing company based in Quebec. The business provides farmers with electronic sow feeders and accompanying software programs.

Fred Wall, the vice-president of marketing at Farm Credit Canada, agrees with Frobose.

Farmers can use the information gleaned from their data to help them make better decisions, he says.



Fred Wall advises farmers to ask themselves, "What (data) will help me make better decisions?"

Jayne Jackson, PigCHAMP's Iowabased product and sales manager, provides some examples. The company provides pork producers with a data collection and analysis platform. (PigCHAMP is a Farms.com company, as is *Better Pork*.)

Producers with lactating sows may measure parameters specific to breeding and reproduction, she says. Farmers with finishing pigs, in contrast, may analyze data pertaining to feed consumption, growth rate and finishing production.

Data collection systems can monitor "weights of feed in bins and feed system run times and can calculate consumption per head," Schoening adds. Some systems can also look at water and feed consumption patterns "to help farmers predict when there may be a health challenge."

Producers can use these types of information to optimize herd health and manage expenses.

For example, if a health issue arises, farmers "can start drilling down" on the data, says Jackson.

"If you have data, you can identify the problem easier" and better understand "when and how the problem arose. Then, you can come up with a solution and determine how to prevent or manage the issue in the future."

Producers can also use their data for benchmarking. Farmers can examine how their operations are performing and compare their production levels to others in the sector, Jackson adds.

Farmers can also monitor operational information to optimize building efficiency and maximize animal welfare.

Farmers can collect such environmental data points as "temperature, humidity, static pressure, and gas levels like CO_2 (carbon dioxide), hydrogen sulfide, and ammonia," says Schoening to Better Pork.

Producers can record "outside weather and temperature, fan stages, positions of inlets and amp draws on motors."

While all these data points can benefit swine operations, the data collection systems must provide readable analyses.



data to be useful to farmers, the system's software needs to effectively extract and interpret it, Frobose says.

Dr. Hyatt Frobose

For example, farmers using JYGA's Gestal feeders receive daily summaries about their sows' performance relative to the animals' feed intake throughout lactation.

"Producers who use these reports





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and this information in a meaningful way can see the sows that are deviating from the norm, flag those animals and react to them more quickly," he says.

However, too much data may impede operational efficiency. So, farmers need to find a balance.

"It is possible to over-collect data, and it's possible to drown yourself in data," says Wall. He advises farmers to ask themselves, "What (data) will help me make better decisions?"

Frobose agrees.

There need to be management protocols that force farmers or their production teams to look at the accumulated data, he says.

Too often, a producer sees the data as overwhelming. When a producer does not routinely look at the data, it becomes more of a hinderance



than an advantage, Frobose says.

"There needs to be a critical control point to react to the reports" to optimize data use in the swine sector, Frobose adds.

Privacy protection

While producers may worry about the security of their precision ag data,

many tech companies see their client's privacy as a top priority.

"Privacy is always important. The one thing we work with our customers on is that the data collected from the Gestal feeding system in their barns is their data," Frobose says.

"The data is only given out by the producer with his or her permission."

The Gestal system keeps farmers' data local by saving it on farmers' hard drives.

And more businesses are taking steps to ensure that producers have rights to their data and that information is only shared with third parties on the farmers' terms.

For example, a company named mPowered gives farmers the right to own and share their data as they wish.

The company provides distributed ledger technology. Developed as a global data-sharing ecosystem, it is accessible, decentralized and trustworthy, the startup's website says. The founders launched this technology in January.

"mPowered empowers farmers. ... (They can) not only consent to hiding (or anonymizing) their identity, but also decide (to allow) or deny an individual in the ecosystem from purchasing a particular dataset," say Joel Sotomayor, the CEO of mPowered, and Idris Soule, the company's chief technology officer, in an email statement to *Better Pork*. The pair are also the co-founders of mPowered. Another way producers can ensure that the companies they work with are committed to protecting farm data is to look for the Ag Data Transparent (ADT) seal.

Organizations that have the ADT seal of approval agree to follow guidelines when collecting, using, storing and transferring farmers' data, the ADT website says. The American Farm Bureau Federation and industry stakeholders drafted these guidelines.

Companies with this designation "have to be completely transparent" about their farm data practices, Wall says.

"We have to overcome the trust gap in terms of data in agriculture,"

he says. "I think ADT is an important step."

Farmers should also have systems, such as secure networks and passwords, in place to keep



their data safe. These safeguards can reduce the risk of unauthorized people accessing data, Jackson says. To protect their farm data, producers should follow security measures like the ones they use to protect email accounts or banking information, she adds.

Producers should speak to their



software system providers to ensure that the farmers understand how the systems collect, transmit and store data, as well as the rights producers have to their own information.

Barriers to adoption

While farmers stand at the forefront of technological advancements and regularly look for ways to improve their operations, some producers must grapple with challenges to use precision ag tools.

Some farmers face the hurdle of unreliable Internet connectivity.

"Some people can't use their phones in the barn," says Jackson.

"I think that is a global factor. It's not just an issue in the United States and Canada. The goal is to be able to have everything at our fingertips to run our businesses.

"But, until infrastructure has been put in place, we can't do that."

Farmers also face a lack of interoperability between systems.

"We need to paint a true picture of somebody's business by working



Technologies that allow farmers to focus on problem animals and spend less time on healthy ones could help the industry tackle labour challenges, Dr. Hyatt Frobose says.

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together with automatic feed systems, feed mills, genetic companies, etc.," says Jackson.

Frobose agrees that the industry has many moving parts which work independently.

"Across technology platforms there are a lot of different companies playing different roles in the industry. Merging that data into a useable format is a real challenge.

"However, technology companies

are working together to simplify and import/export data into user-friendly formats such as Microsoft Excel," he says.

"Being able to have all of those records mesh together well into one or two meaningful reports is essential.

"Even if those companies are the best in their respective areas, farmers often have to look at 10 different reports."

Since "each business is an expert in



its area," Jackson says, allied partners in the swine industry should "work together to come up with holistic solutions." This approach will enable "producers to make business decisions that are best for their farms."

In addition, labour shortages in the swine sector can make it difficult for farmers to adequately examine and interpret data in a timely fashion.

"On a lot of farms in Canada and the U.S., the staffing situation is so severe that there is not enough time to train a team to properly use the technology," Frobose says.

"So, the technology can sometimes not get started the right way, and then it isn't successfully adopted. That's been the challenge for some people: making the leap from a more handson approach to a more technologicalfeedback approach."

On the horizon

While the ag sector has experienced significant technological advancements, further improvements to collection systems and data analyses could help the industry better realize the benefits of digital record keeping.

The management of data and its metadata is important, Sotomayor and Soule say.

"We would like to see protocols set up for the management of data so that relationships between datasets, disparate or not, can be accurately made."

Such improvements could help farmers draw better and faster conclusions from their data.

Some stakeholders would like to see technology that helps farmers "manage by exception," Frobose says. Using such technologies, producers could devote more resources to animals that need extra attention.

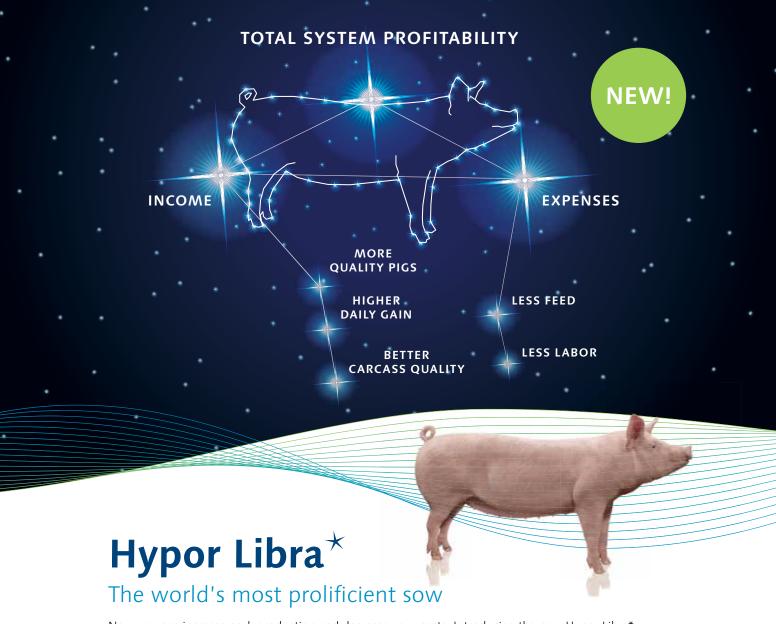
"I would love to see ear tags that have GPS pins on them become more affordable," he says.

"I think that would make locating animals much easier and allow producers to go directly toward problem animals."

Technologies that allow farmers to focus on problem animals and spend less time on healthy ones could help the industry tackle labour challenges,

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Frobose adds.

"I would also like to see the application of camera technologies that are being developed in other sectors to score growth or body conditions of animals. I would like to see those tools become feasible from a cost and implementation standpoint."

In addition, data monetization could soon be a reality. Indeed, farmers could make money by choosing to share their production information with companies in the industry. This possibility could put farmers back in the driver's seat, giving them more control over how others use their data.

"Data is the new currency; many just have not attributed it value," Sotomayor and Soule say.

"For a unit of currency to be (issued), it must follow the properties of scarcity, fungibility (i.e., the commodity's individual units are essentially interchangeable), divisibility, durability and transferability," they say. "Data can meet all (these) properties."

Through the mPowered network,



"Data is the new currency; many just have not attributed it value," Joel Sotomayor and Idris Soule say.

farmers can monetize their data by selling it to the companies of their choice.

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1-800-268-7769 LEAN EFFICIENT PROVEN points to ensure data accuracy. The company assigns value in both local (i.e. Canadian or American) and crypto currencies.

Overall, farmers have endless opportunities to collect and use data says Schoening.

"Today, we are continuing to develop tools that tie environmental data, records and conditions to the production side of operations.

"So, we can look at the effects that environmental settings or weather conditions have on pig production" and decide "how we set barn climatic conditions during certain times of the year or based on weights of pigs," he says.

"We can also look at feed consumption rates based on temperature and humidity. We can see what effects those conditions have on feed consumption and adjust diets accordingly. There are a lot of things we can do with this data as we move forward."

However, to reach these desired outcomes, farmers and their herd management teams must start by using and interpreting the data appropriately.

"Technology and information can either play a big part in the solution, or they can contribute to the problem if they're applied incorrectly," says Frobose. **BP** HOG WATERING EQUIPMENT

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HOW TO SUC

by GEOFI

Industry experts and a pork production on what is often seen as a daunt

SUCCEED CESSION

GEDDES

cer share tips to get the ball rolling ing – albeit important – process.



Like taxes and rumours of an early frost, passing the farm to the next generation is a topic we'd rather avoid. Given the high stakes and the size of today's farming operations, however, dodging the subject is just not an option.

Fortunately, if you prepare properly, consult with experts and take it in bite-sized pieces, succession planning can be a life-changing experience.

"The language around this process is changing from 'succession' to 'transition," says Elaine Froese. She is a Boissevain, Man.-based professional speaker, writer and coach who specializes in helping farm families work through the issues of transition, business and communication.

Change is in the heir

"Succession conjures an image of a king being kicked off the throne," says Froese. "But we're really talking about a transition of labour, management and ownership, and it all happens at different times. There is also a change in roles and responsibilities – something a lot of farm founders are hesitant to do. They fear a loss of control and identity.

"Transition implies a more gradual process which tends to be less unsettling."

Producers can be overwhelmed by the idea of starting the process. So, to begin, Froese encourages them to answer three key questions:

- What do we need as an income stream for the next 20 to 30 years to live well?
- Where are we going to live?
- How will we be fair to non-farming heirs?

SUCCESSIONPLANNING

The third question often leaves people stuck. They want to keep the hog farm intact but ensure fair treatment for themselves and all their heirs. Success with succession hinges on open and honest conversations from the outset.

"Clarity of expectations is crucial so that nobody has to read minds or make assumptions as to what parents, children and siblings need or want," says Froese.

"There must also be financial transparency. I worked with a 44-year-old son who didn't know that his dad had \$2.5 million in debt because nobody talked it through."

The old maxim – when you assume, you make a "donkey" out of you and me – could well have been directed at farm parents.

"Clear is kind," says Chris J. Veilleux, president and CEO of Prairie Wealth Planning Consultants. He runs a financial advisory firm based in Brandon, Man. that provides consulting and financial planning services.

"Producers don't always sit around the kitchen table and talk about these things. One of my clients passed the whole farm to a son and daughter, only to realize they weren't a good team. One wanted to push the entire operation into grain farming and the other favoured cattle, so it turned into a mess.

"The business (also) didn't have enough cash flow to sustain three households."

When fair is unfair

Though fairness is a noble goal, producers with multiple heirs must tread carefully to ensure that their good intentions don't backfire.

Certain cultures insist that all children be treated equally and require the division of the farm's assets into equal portions. This situation can lead to tension among siblings and cause distress when only one of several children takes over the farm.

"The non-farming kids will get assets from the parents' personal wealth bubble but, typically, the farm successor wants to keep farm assets



"Clarity of expectations is crucial so that nobody has to read minds or make assumptions as to what parents, children and siblings need or want," says <u>Elaine Froese.</u>

together so (he or she has) total control going forward," says Froese.

Families have a lot to consider in transition planning, so a team approach is often best. For some, the process might start with a financial adviser.

"I advise producers to first determine if the farm is staying in the family and, if it is, whether it will be

going to more than one child," says Veilleux. "The (parents) must also decide if they will do a one-time transfer or have it happen over time."



The next issue is control. A difference exists between transferring ownership on paper from a tax standpoint and transferring control.

Who will make the fundamental

decisions about the farm's operation? Will the next generation call the shots, or does the senior producer continue to hold the reins for a period?

"If desired, we can structure things so future growth passes to the next generation but control stays with the parents," says Veilleux. "An adviser should pose many questions to clients and dig deeper. This is much bigger than just saying, 'Here's a product to fix your problem."

A taxing process

An accountant is another integral part of the equation. The Income Tax Act in Canada has specific provisions for farming and fishing businesses, and these provisions could loom large in any plan.

"Under the act, if certain criteria are met, producers may qualify for two significant tax benefits: the lifetime capital gains exemption and the family farm rollover rules," says

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Ryan Stevenson, an accountant who specializes in tax and valuations. He is a partner at KPMG LLP in Lethbridge, Alta.

"If you qualify, the first \$1 million of gain on the sale of farm property can be tax exempt, and/or that same property can be rolled over from one generation to the next without incurring income tax."

Properly managing both family dynamics and the transition's tech-

nical aspects will bring success.

"Start by communicating and understanding the goals of all family members," says Stevenson.

"You should then surround yourself with experts like financial advisers, lawyers and accountants who can help map out a route to achieving those goals. Just because you have an objective doesn't mean you can do it legally or tax efficiently but, with proper planning and

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should remember, though, that a transition plan must be adaptable. Tax rules, laws, individual health statuses and family relationships are fluid, so a proper plan anticipates those changes.

Farmers should also revisit the plan over time.

If the process sounds long and involved, that's because it is. The best time to start would be ... yesterday.

Move it or lose it

"It's so important to start early and understand that this is not a one-year process. You can't just make the decision and do it," says Andy Vanessen, who owns a 400-sow farrow-to-finish operation and 6,000-head feedlot in Picture Butte, Alta.

"If you start at age 75, it might be too late. Start at 55, if you can, so you don't run out of time. It takes a lot of thought, meetings and money to do it right."

As someone who built up his business over 40 years, Vanessen understands that nothing happens overnight. Yet the transition planning process still surprised him.

"My wife and I discovered that planning and implementing the plan is a slow, long-term undertaking," he says.

"You need to build a team and incorporate their advice. We had some ideas that we ran past the accountant to see what would and wouldn't work and to understand the tax implications. We then went to the bank and ensured that they were onside with it all, as they are a big partner in the whole thing.

"From beginning to end it took about three years, so you need to be ready for that."

Producers should also be prepared for the change in mindset that accompanies the transition.

SUCCESSIONPLANNING



"Start (transition planning) at (age) 55, if you can, so you don't run out of time. It takes a lot of thought, meetings and money to do it right," Andy Vanessen says.

"Understand that, all of a sudden, you are giving up control and only owning part of the farm," says Vanessen.

"That can be hard as you started and grew the business yourself. You really have to make up your mind that this is the way you want to go. Once you have a plan and have signed on the dotted line, you must accept that it's done and you can't go back.

"It's like selling something; you can only sell it once. This is a sale to the next generation, and that takes some getting used to," he adds.

For pork producers, transition planning is a "good news, bad news" proposition. It involves one thing at which they excel and one thing with which they struggle: doing their homework and asking for help.

"Farmers hate to be gouged, so they should invest some time in research," says Froese.

"Go to the Canadian Association of Farm Advisers (CAFA) website. Talk to friends who went through succession planning. Arrange a 15- to 30-minute complimentary discovery call with professionals to get a sense of what they can and can't do for you."

Thanks to modern technologies such as email, FaceTime, Skype and scanning, producers can work remotely with people – even if they are in different provinces – and have access to excellent resources.

Then build on your research.

"Get clear on your priorities, build a great team of advisers, and don't be afraid to ask for what you need," says Froese. "Be sure to get cost estimates before you jump in. It's just like buying a tractor."

As with farming itself, the greatest hurdle in transition planning is also the most important: taking the first step. **BP**



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UP CLOSE

by KATE

AYERS



Meg Wallace photo

KEYS TO SUCCESS: PASSION AND DEDICATION

'Full of dreams,' a young German couple moved to Ontario in the 1980s and built their pork operation.



The entire Schober family enjoys helping on the farm when they can. "My kids are very supportive that way," Arno Schober says. Pictured left to right: Gerrit, John, Gudrun (front), Nina (back), and Arno. Eric is absent from the photo.

Three decades ago, Arno Schober and his wife Gudrun looked to Canada for a different lifestyle and new opportunities in the ag sector.

Arno grew up in 1970s Germany on a small mixed farm, which had pigs, cows and some acreage. He always wanted to farm, so he completed an agricultural college program. While Schober aspired to take over the family operation, it was too small to support his desire to farm full time.

In 1985, Schober travelled to Canada with his uncle Otto Hemmerlink to visit a friend who emigrated to Canada a few years earlier. While on this trip, Arno fell in love with the country and began looking for opportunities to immigrate and build a business here. In 1988, he and Gudrun married and moved to Canada. The couple bought a 100-acre farm with a finishing barn in Simcoe County, Ont. They both worked off the farm full time for the first few years to get their farm business up and running.

"We came with empty pockets but full of dreams," Arno says.

In 1991, the Schobers rented another barn and purchased their first 55 sows to start a farrow-to-finish operation, which eventually grew to 180 sows and 350 acres of crops.

A dozen years ago, Arno and Gudrun diversified their operation with the addition of a do-it-yourself pig-roast business.

They provide customers with a barbecue and pig.

"I can remember when, 10 years ago, a lot of smaller producers quit in Ontario," Arno says.

"We ended up diversifying and doing on-farm marketing with barbecuing and freezer orders. Through diversification, we faced those challenges of not being profitable."

This business also provides the Schober family with a fun way to connect with consumers.

In 2015, the couple decided to change the business model of their main operation. The Schobers faced major barn renovations to align with the upcoming group sow housing regulations, so they decided to sell their farrowing sows.

The family opted to switch the barn space over to house finishing and

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nursery pigs. The Schobers established a strategic alliance with another local producer who supplies them with early weans biweekly.

The family also grow corn, soybeans and winter wheat.

"We look at our farm as an integrated operation where most of the crops we grow are fed to the pigs and manure is applied back onto the land," Arno says.

The family feed their wheat and corn directly to the pigs. The Schobers sell their soybeans to a local elevator and purchase meal and supplements.

The couple have four adult children: Eric, Nina, Gerrit and John. They all have an appreciation for agriculture. John is the most interested in taking the farm over upon the completion of his ag diploma at Ridgetown College in Ontario.

The Schobers look forward to continuing their successful operation, advocating for their industry and producing high-quality pork products for their customers.

What are your roles on your farm?

Arno: My role includes everything on the farm.

My wife and I share the chores in the barn.

I am responsible for the field work and all the repairs on the farm and in the barn.

How many people does your farm employ?

Three of us – me, my wife Gudrun and our youngest son John.

Hours you work per week?

I would say 50 to 60 hours.

Hours in the office per day?

At least a couple.

Email or text?

It depends on the type of communication. I prefer text messaging for more conversational communication and email for the sharing of files or information that is in longer form.

I feel like I don't need to respond to emails as urgently as shortmessaged texts.



Gudrun, Nina and Arno Schober pose for a photo with one of their early wean pigs.

Any favourite apps?

There are a lot of cool apps available out there.

But, as a farmer, my favourites are definitely the weather apps and Google Maps.

Google Maps helps me get around but also provides information like business hours.

What role does social media play in your daily life?

Not a very big one.

I use social media to gather and share information – it's great for those applications.

But sometimes social media can be a waste of time because I start looking at things that aren't useful for my business.

I might look at social media once a day for a little bit.

How often do you travel?

Not very often.

For pleasure, we should take time off more often.

We plan on doing that when John is home from school.

Where did you last travel to? Texas, last June.

What do you like best about farming?

I like the lifestyle that farming provides my family. The farm is the best place to raise a family.

What do you like least?

With the animals, farming is a 365-day job.

I am not complaining about it because farming is all I have ever done. But you can't just turn (the work) off on a Friday afternoon.

Also, the uncertainties in the commodity markets and the unpredictable changes in politics.

What are the most important lessons you've learned?

I would say that things are never as good or bad as they may seem at first.

And you get out of life what you put into it. That goes for the pork business as well.

What's your guiding management principle?

I like to be fair with people and I am appreciative of people.

I like to treat them as I would like to be treated.

I appreciate when people go out of their way for me and I like to return those favours.

What's your top tip about farm transition planning?

We are just starting farm succession conversations in my family now.

I think it's important that we have

eg Wallace pho



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the best interests of our business in mind while, at the same time, in the end, everyone in the family has to be happy with the outcomes (of our plan).

So, my strategy is to include everyone in the farm transition decisionmaking.

Are you involved in any committees, associations or volunteer efforts?

I have been a long-time director for the local pork producers' association here in Simcoe County.

Since 2012, I have been a board member for Ontario Pork.

What are your hobbies or recreational activities?

Outdoor activities like hunting and snowmobiling.

What was the last book you read?

Takedown: The Attempted Political Assassination of Patrick Brown by Patrick Brown.



John Schober (left) is the most interested in taking the farm over upon the completion of his ag diploma at Ridgetown College in Ontario.

What does your family think of farming?

We always involved the kids in the farm when they were growing up.

Now that they are grown up, they still help us whenever possible. So, my kids are very supportive that way.



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What's your top goal?

On my farm, my top goal would be to produce a top-quality product in an efficient and low-cost environment.

How do you define success?

To my wife and me, success would be that we provided a stable environment in which our kids grew up and they are ready for the world.

Is your farm vehicle messy or neat?

I had to get a new truck recently, so it is still neat. (Laughs.)

But, if history is any indication, that won't last long.

What was the last piece of shop equipment you bought? Another cordless drill set.

What's the best time of day?

The first part of the day when things are still fairly quiet and most people are still in bed.

The first cup of tea in the morning.

If you could send a message to non-farmers, what would you say?

I would say, 'Try to get to know a farmer.' Discuss your concerns and the questions that you have about modern production practices and animal care with the farmer directly.

There are a lot of people who are



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The Schobers raise finishing and nursery pigs on their farm.

trying to tell the public how bad things are on the farm and I don't think that is the case.

Every time we interact with customers on the farm, we are often surprised by how little people know but how much of an opinion they have.

Sure, it might take half an hour to speak to that customer and you think you'll be behind in other work.

But, in the end, it feels really good that he or she goes away with a new understanding of what happens on the farm.

How do you support your mental health during busy times of the year?

No matter how busy or crazy things are, I still try to take time for myself and make family time. I always say that the work doesn't walk away – it will be there tomorrow.

We need to take care of ourselves as well.

What was your most memorable crop/production year?

I don't have one.

I think that every year presents different challenges for the crops and in pig production.

If you weren't a farmer, what do you think you'd be doing for a living?

I don't think I could be doing anything else but farming. Farming has been in my blood as far as I can trace back in my ancestry. **BP**



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by LAUREN ARVA

FARMER OFFERS HANDS-ON LEARNING

This P.E.I. producer focuses on caring for her animals, preserving her land and educating consumers.

When Nancy Sanderson and her family bought their 85-acre farm in central Prince Edward Island 11 years ago, the property only had a house and a collapsing chicken coop.

Since then, Nancy, husband Ken and daughter Kaley built Hope River Farm from scratch. They pastureraise livestock, selling lamb, pork, chicken, duck and rabbit to local consumers. At this point, the family also rent a portion of their land to local growers but, longer term, the Sandersons hope to farm the entire property themselves.

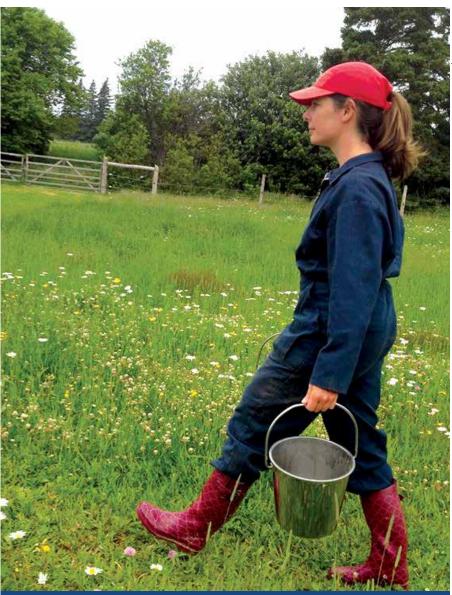
The Sandersons are also devoted to environmental initiatives. They increased the size of their woodlots, doubled the width of existing riparian areas, and planted native trees and shrubs with help from the Trout River Environmental Committee and the Macphail Woods Ecological Forestry Project. The family adhere to pasture management practices, such as intensive grazing management and regular soil testing, to improve soil health.

The Sandersons regularly open their farm gate to help educate the public about agriculture.

Between June and October, Hope River Farm offers drop-in tours. Each farm education session lasts between 30 and 45 minutes, and visitors can learn about the family's animal husbandry practices and food production.

Beyond simply educating visitors, the family aren't afraid to put tourists to work. Indeed, the Sandersons partnered with Experience PEI to offer Chore Time adventures, a two-hour experience for visitors of all ages. During this time, participants help on the farm, moving pens and feeding and caring for the livestock.

Through this hands-on activity, visitors get a glimpse of the work involved in running a farm and producing food.



Nancy Sanderson and her family purchased the 85-acre Hope River Farm in central Prince Edward Island 11 years ago.

Describe your role on your farm.

As the main farmer in the family, I handle all day-to-day work as well as marketing, bookkeeping, managing volunteers, etc.

How many people does your farm operation employ?

Just me.

I also take on volunteers in the busy months.

Hours you work per week?

That depends on the time of year. From May to October, it would be over 90 hours per week. For most of the winter, my weekly hours are closer to 20.

Hours in the office per day?

In the summer, almost none. The winter provides a time for me to catch up.

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What are three items that are on top of your desk?

A stack of promotional materials – including the car door magnets that seemed like a great idea until they repeatedly flew off while driving down the highway.

I gave up on that idea after searching through the ditch for the magnets a second time. They're stashed behind a shredder.

A wire inbox full of "I don't know where to file that" sort of stuff.

A clipboard full of barn building drawings, quotes, etc.

Email or text?

Email! I still don't carry a cellphone.

What role does social media play in your daily life?

I use our Facebook page to keep in touch with our customers and let the world know what we're up to.

Other than that, I don't spend a lot of time on social media.

What do you like best about farming?

Being able to work outdoors every day in a job where I can see the progress I'm making.

When I look around at how much the farm has changed over the last ten years, it keeps me very optimistic about the next ten.





The Sanderson family welcomes visitors to their farm, offering drop-in tours and hands-on experiences.

What do you like least?

Having to work outdoors every day. (Laughs.)

Nine out of ten days are great. But, there's always that miserable bad weather day that makes me wish I could be an office worker just for a day or two.

What does your family think of farming?

My daughter has embraced everything about the farming lifestyle and wants to take the operation over some day.

My husband, on the other hand, is quite happy to keep his office job and stay out of the way.

He loves living on a farm, not the work involved.

What's your top tip about farm succession?

Communication.

We're still a few decades from that transition yet, but open communication from now until then should help smooth the process considerably.

What's the most important lesson you've learned in life?

I can solve most problems that arise.

No matter how much you learn, the challenges just keep coming. I won't live long enough to know everything about what I do, but I can continue to learn and adapt.

What are the biggest challenges you face in the industry? How have you addressed them?

Climate change. Everything after that is trivial.

I'm researching strategies to mitigate damage or loss due to changing weather.

Silvopasture (the practice of adding trees to grazing land to increase shade and productivity), increased livestock housing, and water collection are all in the next five-year plan.

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REVIEW YOUR BIOSECURITY

- Are your biosecurity protocols being respected?
- Do all staff, suppliers and visitors understand the importance of not bringing any meat and meat products into the country. Do they understand what's at stake?
- Are staff fully engaged in making sure nothing, including what they bring in the barn, can harm your herd?

Your veterinarian can help you strengthen your biosecurity measures, but only you can enforce them!



More information about African swine fever can be found at www.cpc-ccp.com/ african-swine-fever



SPREAD THE WORD

Has your neighbouring hobby farm heard of African swine fever? Do they understand the importance of clean footwear and biosecurity? Do they know the risk posed by contact with wild pigs and feeding kitchen waste to pigs?

Share your knowledge and contribute to a healthy hog herd in Canada.







Patch, one of the family's livestock guardian dogs, enjoys a nap on the farm.

What do you think are the most exciting opportunities in the industry?

Direct sales to consumers.

There's an awareness of food production now that is very encouraging. Opportunities for direct sales mean that we no longer must buy retail and sell wholesale.

If you could send a message to non-farmers, what would you say?

That this is not a job, it's a calling. When you think of it like that, it explains a lot.

What's your top goal?

To be actively using all 85 acres and not renting out my land.

I'm determined to leave the soil better than I found it, so I'd like to be managing it myself.

How do you define success?

With life satisfaction, not monetary gain.

I like to make a living, too, but daily happiness is key.

If you weren't a farmer, what do you think you'd be doing for a living?

I'd probably still be woodworking. I'm a cabinetmaker as well, so I'd probably go back to that full time.

Is your vehicle messy or neat? Neat.

OK, my vehicle is mostly neat. I hate having to search through a pile of junk whenever I need to find something.

What was the last piece of shop equipment you bought?

A power inverter and two marine batteries.

Now, I have a mobile power source wherever I need it. I use it to run fencing, freezers, whatever.

Are you involved in any committees, associations or volunteer efforts?

I'm involved with my local community hall.

I've been a 4-H leader in the past as well.

Is there anything you do to support your mental health during busy times of the year?

When things get really busy, I tend to just lean into the work and keep pushing.

I do, however, manage to keep my sense of humour – at least most of the time.

A good belly laugh every day does wonders for reducing stress.

What are your hobbies or recreational activities?

Can home renovation be a hobby? I have a workshop in the basement, so I work on the house a bit every winter. Oh, and I read a lot, and still do some knitting and sewing in the winter.

What was the last book you read?

Nudge: Improving Decisions about Health, Wealth and Happiness by Richard Thaler and Cass Sunstein.

It's made me rethink the community supported agriculture (CSA) arm of our farm business. We were offering CSA shares but have moved more to an open system of sales, not a member-based system.

How often do you travel?

I try to get home to the family farm in Saskatchewan every two years.

We travel to Nova Scotia to visit Ken's family for Christmas every third year.

Where did you last travel to?

Lloydminster, Sask.

My 99-year-old grandmother was ill, so I went to see her.

What's the best time of day?

Early morning. The rest of the house is still asleep

and everything is still possible.

What was your most memorable crop/production year?

Last year.

We increased production and still sold out of everything! What a great feeling. **BP**



PigCHAMP is proud to announce our new Allied Business Partner in Canada, **EastGen.**



EastGen is based out of Guelph, Ontario and will be providing Canadian clients with PigCHAMP products and services.

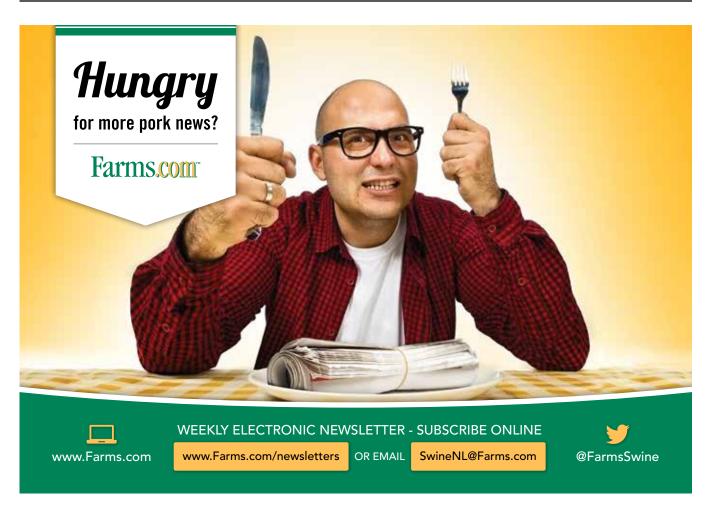
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by LILIAN

SCHAER



THE ROLE OF TRANSPORT IN BIOSECURITY

Producers can use driver platforms, swing gates and tiered wash levels to help reduce disease risks.



Stairs, rather than a ladder, make it easier for personnel to enter driver platforms.

Disease is a constant challenge for Ontario's pork industry. The sector is on high alert about African swine fever but it's also important to guard against other non-reportable diseases. From porcine epidemic diarrhea (PED) and porcine reproductive and respiratory syndrome (PRRS) to Senecavirus A and others, each disease results in costs and losses – and takes an emotional toll on producers dealing with the outbreaks.

Pig transport, from potential biosecurity gaps to limited truck washing capacity, is one risk area for disease transmission. Sow sites, in particular, have the potential to move disease to a number of downstream sites. Preventing infection in sow sites reduces the effects on production and the need for costly elimination plans.

Dirty trucks pose a significant disease transmission risk. This issue includes missed biosecurity protocols, pigs loaded onto dirty or improperly washed trucks becoming infected with the diseases on the trailer, or diseases on a dirty truck contaminating a barn when the next group of pigs is loaded.

Here are some actions that the industry can take to minimize that risk.

Driver platforms

These platforms allow drivers to properly follow biosecurity protocols while entering their trailers without being exposed to wind, snow, rain and other disagreeable weather.

A covered entrance at the loading chute allows drivers to do a biosecure entry using a bench that divides the space into "clean" and "dirty" areas. A shield running from the bench to the floor will prevent dirt from moving from the dirty to the clean side.

"Being a livestock transporter is

not an easy job. Not only do you need to be a professional driver, but you also have to be a good stock person to be able to move animals efficiently. (You must) be mindful of stocking densities and how much bedding to use, and know how to properly set up and load the trailer based on the weather," explains Drew De Bruyn, a transportation specialist with an Ontario swine production system.

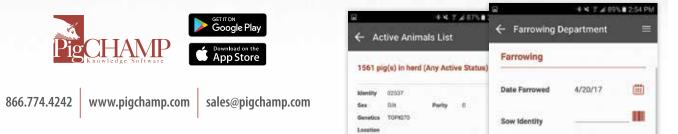
Producers should build the driver platform with a staircase instead of a ladder to make it easier for drivers to access, De Bruyn advises. Farmers should ensure the entry door swings to the outside so drivers have more room to move around on the inside. It's also important for producers to keep the "clean" side of the entrance clean, he adds.

Dr. Doug MacDougald, a vet with Stratford, Ont.-based South West Ontario Veterinary Services, agrees.

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The PigCHAMP Mobile Application allows for remote data entry of PigCHAMP Reproductive information while providing reporting functionality and validation to users. This phone or tablet app, allows users to interact directly with PigCHAMP Online via an internet connection. All of the data you would generally record in the PigCHAMP computer application can now be easily entered into the PigCHAMP Mobile App. This gives you the convenience of not just data entry, but reports such as active animal lists, sows due for attention, and more.







Swinging gates are handy tools in the load-out area of the barn.

"A covered entrance at a loading chute can make it better and easier for drivers to do their jobs – it's one more tool to minimize disease transmission," he says. "We need all barns, especially sow barns, to have this in place."

Swinging gate in load-out area

Another tool easy for every producer to implement is a swinging gate system in the load-out area, De Bruyn says.

When barn workers move pigs past this point, the staff can swing a gate that is wider than the alleyway into place to close off the hallway. This gate keeps the animals from moving back into the barn and bringing any disease that might be present on the truck with them.

A second gate blocks the entrance into the changing area of the driver platform.

Truck washing

Assembly locations and processing plant unloading docks, in particular, are high-risk contact points because animals and trucks are coming and going from many different locations. A thorough wash, disinfect and dry of every trailer, as well as the power unit, driver boots, floor mats etc. after every load of pigs is one way to greatly reduce the risk of disease transmission. However, this strategy is not always feasible due to financial and logistical constraints.

An alternative approach is the use of segregated trailers that only move animals between breeding stock barns, sow barns and nurseries. Washing this exclusive fleet of equipment at a segregated wash bay helps avoid accidental cross-contamination during or after washing.

"Washing livestock trailers is a crucial aspect to transport biosecurity. A washed trailer that moves market hogs from an all-in, all-out finishing barn will (have) a different style and level of wash compared to a trailer that is going to move boars from an isolation barn to a boar stud," explains De Bruyn. **BP**

Swine Health Ontario is a leadership team focused on improving and coordinating the industry's ability to prevent, prepare for and respond to serious swine health threats in Ontario.

WAYS WE CAN MINIMIZE DISEASE TRANSMISSION

Optimal biosecurity practices will vary slightly depending on the type of operation. Below, check out some targeted strategies for sow barns, nurseries and finisher barns.

Sow barns/isolation

- Install a driver platform
- Never allow a dirty truck to back up to the facility
- Wash, disinfect and dry trailers or use a transfer truck

Nursery

- Install a driver platform
- Never move pigs from nursery to finishing barns with a dirty truck
- Wash, disinfect and dry trailers or use a transfer truck

Sow barns/isolation

- □ Install a driver platform
- □ In continuous flow systems, wash, disinfect and dry trailers
- In all-in, all-out barns, scrape and high-volume wash/disinfect trailers
- Consider a chute extension BP



Pig transport, from potential biosecurity gaps to limited truck washing capacity, is one risk area for disease transmission.

Welcome to OPC 2019





It is my honour to represent this volunteer organization of dedicated and hard-working members made up of producers and many industry representatives with different views of the Ontario pork industry.

Once again this year, the show has grown with over 20 new exhibitors filling over 32,000 square feet of exhibits in 80,000 square feet of events and show space.

As always, biosecurity is top of mind and we ask that, before you come to the show, you plan on having your own biosecurity plan in place and implement best practices before returning home.

Some of the highlights this year will include several informative sessions throughout the show, as well as the cooking demonstration and the crowd favourite "Taste the Best" featuring pork creations from six local chefs paired with beer sampling from Railway City Brewery Co.

Included in your admission ticket is a FREE PORK BARBECUE lunch prepared by Perth County Pork Producers.

I personally guarantee you will not leave this show hungry!

The Bacon Maker Classic (BMC) is always popular and, with 65 kids signed up to participate in the BMC and Quality Pork Competition, they

promise to be two great events.

The Past Presidents' Lunch will be a great social event featuring some amazing pork tastings.

Pig Art is always interesting and fun with the auction of some of the top art pieces.

Hog Jog is always a great event for a great cause, and this year they are set to surpass \$500,000 donated to local charities since the event's inception.

This year, the money raised will be going to L'Arche Stratford, an organization dedicated to improving the lives of people living with intellectual disabilities. Although we are saddened to learn of the passing of their founder Jean Vanier on May 7, we are honoured to host the OPIC Hog Jog 2019 as they donate to L'Arche Stratford and the legacy of Jean Vanier.

This year we have implemented a new live map and exhibitor listing that can be found on our website. You can personalize your visit by using the Map Your Show feature "My Show Planner" to add events and exhibitors to your schedule, or to find an exhibitor booth location, to help you make the most of your time at the show.

Also back by popular demand is the beer tent. This venue serves as a place where you can catch up with friends or do some business in a relaxed environment away from the barn.

Please join me at the 46th annual OPC on June 19 and 20 as we Celebrate Pork and the Year of the Pig.

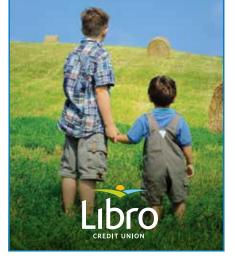
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Ontario Pork Congress

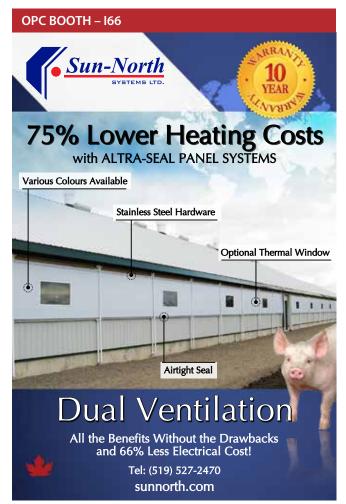
CELEBRATING ALL THINGS PORK AT THE OPC

Farm families and industry reps can enjoy learning and entertainment opportunities at the annual event. *by JIM ALGIE*



Ontario's pork industry is gearing up for the 46th Ontario Pork Congress (OPC), which runs June 19 and 20 at the Stratford Rotary Complex.

An annual gathering of pork industry participants, the volunteer-run OPC has also become an inclusive, cultural celebration of all things pork. The OPC is "a social event for hog producers to get together once a



year," said Meghan Kirkpatrick, the OPC's first vicepresident.

And the location is perfect for such a gathering. Stratford is in Perth County, home to the province's largest number of hog producers, 2018 Ontario Pork data shows. Perth County's 215 farmers produced 862,473 hogs in 2018, placing it third among the province's pork-producing counties. Nearby Huron and Oxford Counties led the province with 2018 production figures of 1.014 million and 963,069 hogs, respectively.

At its core, the OPC is an annual trade show. This year, more than 140 exhibitors are participating.

But congress organizers and supporters provide a variety of activities for farm families and other industry participants.

Adults and children nine years of age and older will demonstrate their showmanship skills in the Bacon Maker Classic on June 20.

At last count, 65 entrants will strut their stuff in the ring. Many participants are members of Oxford County's 4-H Swine Club, as the Ontario Pork Congress event serves as their year-end project.

Excitingly, at least 10 participants are first-timers in the competition, says Kirkpatrick, who heads the Bacon Maker Classic committee and works as the customer service manager with Sharpe Farm Supplies of Guelph.

The event is an excellent opportunity to educate youth about hog industry opportunities, she said. "Our show is really educational. It gets (kids) excited and gets them more involved in the industry."

The event provides "a good, social atmosphere for these kids to meet their peers as well," she added.

The Ontario Pork Industry Council's annual Hog Jog race is another event that welcomes participants of all ages. It includes a 500-metre course suitable for children, a 3.5-kilometre family course and a more



demanding 10-kilometre course. The races are held on June 19.

The event has raised about \$473,500 for Stratford-area charities over the past 13 years as a thank you to the host community.

In 2018, for example, Hog Jog participants raised \$54,000 for the Local Community Food Centre, a charity that invites community members experiencing poverty to access, cook, share and advocate for local food. This year's funds are earmarked for L'Arche Stratford which, since 1973, has provided housing for men and women with intellectual disabilities.

"Basically, we're trying to keep ourselves connected to the community, giving back to the community and giving back to the swine industry," Kirkpatrick said.

The popular Pork Quality Competition also returns for 2019. Registered participants must drop their pigs off at Bachert Meats Inc. on June 13. Judges evaluate the finished carcasses based on back fat, marbling, loin eye colour, firmness, loin eye measurement and the overall grid placement score. Lisa Wormsbecher and Colleen Roehrig, the competition judges, will lead a pork cutout and quality demonstration after the Bacon Maker Classic.

And congress organizers will once again support programming for the Spanish-speaking members of the province's pork industry.

Francisco Trejo, OPC's second vice-president and head of the organization's International Workers Committee, has helped organize the Spanish-language events. Working with a group of 17 Ontario producers with Spanishspeaking employees, Trejo has organized seminars on work safety and pork production.

A Mexican-born swine sales consultant with Jones Feed Mill, Trejo has more than 25 years of experience in livestock agriculture in Mexico, the United States and Canada.

A growing shortage of available Canadian labourers, together with evolving American immigration policies that often seem hostile to offshore workers, likely means more Mexican, Central American and Asian workers willing to work on Ontario hog farms, he said.

Canadian producers "can get very well-trained people from Mexico ... but also Guatemala and lots of Asian countries," he said.

Last year's Pork Congress team provided at least 25 farmers with training on the ins and outs of Canadian regulations. The team also gave farmers direct assistance with the paperwork involved in hiring foreign workers to fill farm labour gaps, Trejo said.

In addition to lectures on workplace safety, Spanish speakers at this year's congress will have access to translators to accompany them through trade show exhibits.

"If they need specific information regarding services, products – (whatever) they need – we'll be supporting and translating for them," Trejo said.

Finally, a pork-centred event wouldn't be the same without delicious food. On Wednesday afternoon, attendees can sample pork tenderloin dishes created by area chefs at the Taste the Best event.

OPC attendees are also encouraged to stick around for the annual Stratford Blues and Ribfest. This event runs from June 21 to 23, at Veterans Drive Band Shell.





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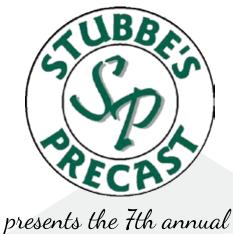


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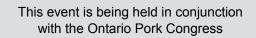
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June 19: Dean Anderson, B.Sc., P. Ag - 46 Safety Topics June 20: Jaime Arias & Abel Lopez will discuss WHMIS and accident prevention on pig farms.

Se invita a los trabajadores internacionales a participar en el Ontario Pork Congress. Se realizará una visita guiada por todas las comerciales y una plática educativa. En ambos días será de 1:00 pm hasta 3:00 pm.

Junio 19: Dean Anderson, B.Sc., P.Ag. hablará sobre 46 puntos sobre seguridad en el trabajo. Junio 20: Jaime Arias & Abel Lopez discutirán sobre WHMIS y prevención de accidentes en granjas porcinas.

Habrá traductores para Español en ambos días, durante las dos horas. Traductores: Abel Lopez, Jaime Arias, Zully Valencia y Francisco Trejo. Informes: (519) 857-6278





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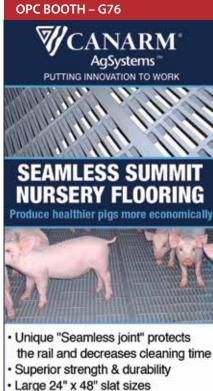
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Better Pork June 2019

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ALTA. PORK CONGRESS GETS BETTER EACH YEAR

by GEOFF GEDDES

The province's swine industry will gather to learn and reconnect at this milestone event in June.



A must-attend event during the Alberta Pork Congress is the Wednesday night banquet, which celebrates the successes in the industry.

When you're a toddler, more is always better: more toys, more attention and more food on your face than in your mouth. As you age, the value of quality over quantity becomes clear and that's the case with the annual Pork Congress in Red Deer, Alta.

The trade show celebrates its 45th birthday this year at Westerner Park from June 11 to 13 and those individuals who attend the event are bound to get their money's worth.

"This is my 20th year managing the event," said Kate Cheney, the sole principal of ConventionALL Management Inc. "Company amalgamations have led to fewer producers, but the quality of this show remains high. We get everyone from decision-makers to workers looking for new products and services they can take back to their manager and help boost efficiency."

Facing the future

As much as attending the pork congress is about finding new products and making sales, the greatest return on investment stems from the opportunities for face time with friends, colleagues and potential customers or suppliers.

The event provides a chance to network, share stories and stay abreast of industry developments.

"A lot of important conversations

take place in the aisles and over coffee or dinner," Cheney said to Better Pork. "People share their struggles and challenges, but also their successes."

Celebrating success is what the Wednesday night banquet at the



The swine industry is gearing up for the 45th Alberta Pork Congress, which will be held at Westerner Park from June 11 to 13.

ALBERTAPORKCONGRESS

Holiday Inn & Suites Red Deer South is all about. The evening spotlights pork leaders and innovators with awards for lifetime achievement, farm team, pork industry ambassador and rising star. The pork industry submits nominations and Alberta Pork Congress arranges the awards. The board of directors determines the winners.

Olymel does its part for recognition as well with awards in five categories: food safety, high health, core lean, core weight and grand champion.

With so much to offer, it's little wonder that booth and ticket sales are moving swiftly.

"We're just scrambling now to accommodate last minute bookers as we are 95 per cent sold out" of exhibitor spaces, said Kyla Arneson, the event manager with ConventionALL Management.

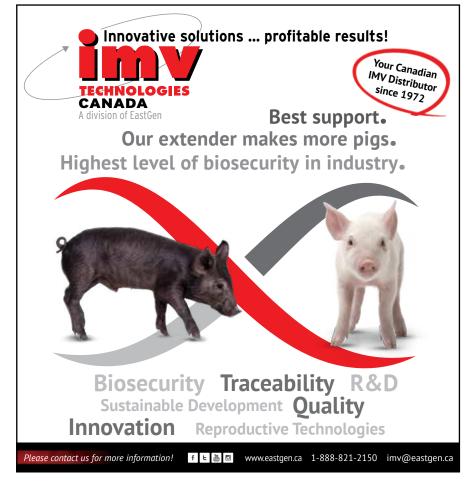
"We have a lot of return exhibitors and half a dozen new companies this year, and to be eight weeks out with only nine booths left is very positive," she added.



Last year, Dr. Jessica Law, a veterinarian and writer of *Better Pork's* "Herd Health" department, received the Rising Star award at the Alberta Pork Congress banquet.

Some good-natured ribbing

Attendees at this year's congress will be treated to a new event. Replacing the usual pork chop barbecue is a barbecue rib contest, which will be



held in front of Westerner Park on Thursday afternoon.

In addition to a judging panel and entertainment, attendees of this paid-entry event will get rib samples, fixings and lemonade, as well as the chance to vote for the fan favourites. Sampling begins at 3:00 p.m., with teams competing for the best ribs in the industry.

"There are people in the pork community who know how to make good pork chops and ribs, so this is a way to earn bragging rights and cap off another great year in Red Deer," said Arneson.

The reference to "community" is apropos and something that Alberta Pork Congress attendees know very well.

"We get lost behind our cellphones and Facebook accounts these days," said Cheney. "In this age, meeting in person, looking someone in the eye and shaking his or her hand is more important than ever. Personal contact enables us to maintain and strengthen the relationships we built on social media, and who doesn't want to eat pork for" a few days?

And if you get more of those ribs on your face than in your mouth, don't worry; you'll have plenty of company. **BP**



Pork News & Views



Prepared and Edited by the OMAFRA Swine Advisory Team

June 2019

Managing Water Intake

In 2017, on-farm best management practices were audited on a total of 24 farms throughout Canada as part of a national project titled From Innovation to Adoption: On-farm Demonstration of Swine Research. This article is part of an eightpart series reporting on these audits.



Among nutrients, water is required in the greatest amount but guite often receives the least attention. Water intake of finisher pigs has been reported to range up to three times feed intake, depending on body weight and feed intake. However, most 'water intake' reported is in the form of water disappearance from drinkers, including water wastage, rather than water actually consumed by pigs. Previous work has shown finishing pigs can waste 25% of water from well-managed nipple drinkers, therefore opportunities exist to reduce wastage when flow rates are adjusted on a regular basis1. Actual on-farm water flow rates and nipple drinker heights were measured on 24 farms across Canada, representing each phase of production from gestation to finishing. Note that not all farms had nipple drinkers installed in each phase of production, for example, some producers solely relied on wet/dry feeders without an additional water source.

Table 1 outlines water flow parameters showing ranges measured for low, target, high, and very high values. Recommended flow rates should range between 1.0 to 2.0 L/min for farrowing and 0.5 to 1.0 L/min for all other phases of production, while the target range used in the analysis was expanded from 0.5 to 1.5 L/min for all areas other than farrowing.

Overall water management within targe audited farms varies across phase ishin **Table 1:** Water Flow Rate Recommendations.

of production (Table 2). Generally producers do a better job in managing flow rates within Gestation (pens) and Nursery, where approximately 60% of the nipple drinkers measured met the target flow rate. The challenge is in Finishing, where approximately two-thirds

Category	Low (L/min)	Target (L/min)	High (L/min)	Very High (L/min)
Gilt Pen	< 0.5	0.5 - 1.5	1.5 - 2.5	> 2.5
Gestation	< 0.5	0.5 - 1.5	1.5 - 2.5	> 2.5
Farrowing	< 1.0	1.0 - 2.0	2.0 - 3.0	> 3.0
Nursery	< 0.5	0.5 - 1.5	1.5 - 2.5	> 2.5
Finishing	< 0.5	0.5 - 1.5	1.5 - 2.5	> 2.5

*Prairie Swine Centre. 2000. Pork Production Reference Guide.*² **Table 2:** Measured Water Flow Rates – 24 audited farms.

Category	Low (0.5L/min)	Target (0.5 – 1.5 L/min)	High (1.5 — 2.5 L/min)	Very High (>2.5L/min)
Gilt Pen	5.1%	33.3%	56.4%	5.1%
Gestation	0.0%	59.4%	21.9%	18.8%
Farrowing	15.3%	38.9%	29.3%	16.6%
Nursery	15.2%	56.8%	19.0%	8.9%
Finishing	5.4%	29.3%	54.3%	10.9%

Table 3: Hypothetical water disappearance measurements.

Category	Low	Target	High	Very High
Measured Values**	5.4%	29.3%	54.3%	10.9%
Water Flow Rate (L/min)	0.5	1.0	2.0	2.75
Number of Pigs	324	1,760	3,260	655
Daily Water Disappearance/Pig (L/pig)	7	7	14	19.25
Total Daily Water Disappearance/Day (L)	2,268	12,323	45,646	12,613
Daily Water Wastage (L/pig)	0	0	7	12.25
Total Daily Water Wastage (L)	0	0	22,823	8,026

** Refers to the percentage of nipple drinkers that were measured in each respective category. A total of 24 farms were measured across Canada.



Ministry of Agriculture, Food and Rural Affairs

Pork News & Views

Ministry of Agriculture, Food and Rural Affairs

of nipple drinkers provide flow rates in excess of pig's requirement, with 11% of nipple drinkers being rated very high (>2.5 L/min).

Economics

Table 3 represents a hypothetical situation of a 6,000-head finishing barn. In this case, if 100% of the nipple drinkers were adjusted to recommended flow rates (1L/min) water disappearance would be 42,000 L/day for the facility. However, as shown in the example in Table 3, only 29.3% of nipple drinkers would have been optimally adjusted. For this scenario, we can assume that any water disappearance above the rate of 7 L/day could be avoided. Therefore, the daily water disappearance would increase by 70% (or 30,800 L) to reach a total disappearance of 72,800 L/day. The direct cost of water wastage (30,800 L) associated with manure disposal would translate into approximately \$119/day or \$41,500 per year if the previous assumptions were met.

Assumptions

6,000 head finishing barn Average daily water consumption per pig - 7L/day Duration of finishing period – 350 days/year (18 weeks/batch) Manure application cost - \$0.0175/ gallon or \$0.00385/litre

The previous example provides potential savings for a hypothetical site; every producer should take the opportunity to assess potential savings related to manure disposal, water use, and pump-

Category	L/Day
Calculated Water Disappearance	72,849
Target Water Disappearance	42,000
Water Wastage	30,849
Additional Manure Disposal Cost/Day	\$119

ing costs on a regular basis for their operation.

Conclusion

Finishing pigs can maintain adequate water intake from a variety of drinker types, however water waste from drinkers can be very different depending on drinker type and management. Research has shown well-managed nipple drinkers can help reduce water waste to the same level as bowl drinkers..1 3 Finally, ensure you regularly check water flow rates, as this will determine time spent at the nipple, water intake and water wastage. Too little is just as costly as too much when it comes to flow rates.

For Further Reading

¹Water Usage and Wastage from Nipple Drinkers

(English) http://www.prairieswine.com/ water-usage-and-wastage-from-nippledrinkers/

²Pork Production Reference Guide (English) http://www.prairieswine.com/ wp-content/uploads/2010/07/2000_ Prairie_Swine_Reference_Guide.pdf ³Effects of nipple drinker height and flow rate on water wastage in grower and finisher pigs

(English) http://www.prairieswine.com/ reducing-water-wastage-from-nipple-drinkers-by-grower-finisher-pigs/ ⁴Recommended Flow Rate & Height of Nipple Drinkers

(English) http://www.prairieswine.com/ recommended-flow-rate-height-of-nipple-drinkers/

⁵A Checklist for Water Use (English) http://www.prairieswine. com/a-checklist-for-water-use/

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Maximizing Performance of Sow Lactation

The following is a summary of Chantal Farmer's presentation at the London Swine Conference held on March 26 and 27, 2019. Dr. Farmer is a research scientist with Agriculture and Agri-Food Canada in Sherbrooke, QC.

Growth of suckling piglets is highly dependent on milk and colostrum production from the sow. Stimulating mammary glands can be used to improve milk production in sows. Changes in diet that can stimulate hormonal production need to be contemplated. One third of sows cannot produce sufficient amounts of colostrum for their entire litter. Therefore, it is crucial that attempts are made to improve sow lactation performance. Once a sow's lactation starts, prolonging the colostrum to provide more essential immunoglobulins and bioactive nutrients is very important. A recent study shows that one injection of a high dose of oxytocin to the sow in the 12 to 20 hours following birth can prolong the colostral phase (see below for details).

Feed restriction after 90 days of age until puberty will negatively affect mammary development, so feeding in un-restricted amounts, including feeds with certain plant extracts that provide estrogenic or hyperprolactinemic properties will aid in stimulating mammary gland development. Dietary supplementation with 10% flax seed beginning on day 63 of gestation until weaning had effective results on mammary development in the female offspring of the treated sows at puberty. This proved interesting because it shows that there is an in-utero effect and demonstrates that there are ways to stimulate mammary development in gilts. More dietary changes that can enhance mammary development is shown in Table 1. Changing body composition during pregnancy by converting their protein and energy intakes is very important. If a gilt is carrying too much extra weight (36 mm backfat) or is underweight (12 to 15 mm backfat) this can negatively affect the development

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Table 1: Enrichment options.

Treatment	Treatment Treatment period		References
10% flaxseed	In utero (day 63 gestation to end lactation)	31% ♦ parenchymal weight	Farmer et al. (2007)
2.3 g/day of genistein (to ♠estrogens)	90 to 183 days	44% ♦ parenchymal cell number	Farmer et al. (2010)
Ad libitum feeding vs. 25% feed restriction	90 days to puberty	46% ♦ parenchymal weight	Sorensen et al. (2002)
Ad libitum feeding vs. 20% feed restriction	90 days to puberty	36% ♦ parenchymal weight	Farmer et al. (2004)
Ad libitum feeding vs. 33% feed restriction	90 days to 5½ months	52% ♦ parenchymal weight	Sorensen et al. (2006)
24 vs. 36 mm BF ¹ at end of gestation via changes in energy and protein and protein intakes	Gestation	240% parenchymal cell concentration	Head and Wil- liams (1991)
21 to 26 or 17 to 19 mm BF vs. 12 to 15 mm BF at end of gestation via changes in feed intake.	Gestation	33% ♦ parenchy- mal weight	Farmer et al. (2016a)
5.76 vs. 10.5 Mcal ME/day	Day 75 to end of gestation	27% ↑ parenchy- mal weight	Weldon et al. (1991)
Domperidone (to ♠ prolactin, 0.4 mg /kg BW)	Days 90 to 110 of gestation	80% ♦ in lumen diameter milk secreting cells	VanKlompen- berg et al. (2013)

 $^{1}BF = backfat thickness$

of mammary tissue. Maximizing feed intake during the first lactation is crucial; sows who are fed either more protein (65 vs. 32 g of lysine/ day) or more energy (17.5 vs. 12 Mcal ME/day) will have an increase in mass of functional mammary gland development

A project was carried out at the Sherbrook Research and Development Center of Agriculture and Agri-Food Canada that studied 61 primiparous sows to compare lactation lengths of 2, 7, or 21 days in first lactation. In the second parity, the effects of treatment on piglet growth and milk composition was determined. In both lactations the litters had 12 piglets of average body weight within 12 hours of farrowing. Only 12 teats were made available to the piglets and surplus teats were taped. During the second lactation, the same 12 teats were made available and the litters were weighed at birth and on days 2, 7, 14, 21, 31 and 56. The piglets were weaned on day 21 of lactation to measure dry matter, fat, protein and lactose contents. Most know that if a teat is not sucked in the first lactation, it will produce less milk in the second lactation, but Farmer's question was, how long the teat must be sucked in order to avoid lower production later on? The study found that if a teat is suckled for just 2 days in the first parity, the milk yield will not decrease in the second parity. This was shown by sows who have a 21 day lactation in first parity, consuming more feed in the first week of the second lactation, but not maintaining that consumption rate in later lactation. This was found to not be associated with a greater piglet growth rate or changes in milk composition. Therefore, there is no advantage to leaving piglets for more than 2 days on a teat in terms of milk yield from that teat in the next parity.

Farmer considers colostrum the elixir for life for newborn piglets. Colostrum contains hormones, growth factors, enzymes, vitamins and minerals; it is the sole source of energy for piglets and also provides passive immunity from the mother via the transfer of immunoglobulins. All of these things are essential for proper development of the piglets. The lacteal secretions that are produced approximately 24 hours following the birth are considered colostrum, then it becomes transition milk until 72 hours postpartum, at which time it becomes milk. The difference between the three is the significant changes in milk composition such as decreased protein, immunoglobulins and growth factors. Fat, lactose and energy content is increased. The amount of colostrum produced by each sow varies and is affected by circulating concentrations of various hormones. Oxytocin plays an important role in milk quality and early lactation by affecting the amount of

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space between mammary cells and delaying the tightening of junctions between mammary epithelial cells, therefore allowing more large molecules such as immunoglobulins to pass directly from the sow circulation to the colostrum.

A further study was conducted at the Sherbrooke Research and **Development Centre of Agriculture** and Agri-Food Canada to test how oxytocin prolongs the colostral phase in sows. Twenty Yorkshire X Landrace sows of second parity were divided into two treatment groups where they received either saline injections or a very high dose (75 IU) of oxytocin 4 times in early lactation. Eight hours after the first oxytocin injection they saw differences in the milk composition due to the treatment. The milk – post treatment contained more proteins, immunoglobulins G and A, IGF-1 and energy compared to the milk from the sows with the saline injections. These differences were transitory because they were no longer present on day 4 of lactation. The weight gain of the piglets did not have any drastic changes between treatment groups, although there were lower rates of pre-weaning mortality in litters from sows who received oxytocin. Farmer added that the number of litters used was not large enough to be able to draw any conclusions as to the effect of treatment on animal performance. Consult your veterinarian before making changes to your oxytocin protocols.

Farmer concludes by mentioning that nutrition of prepubertal and late pregnant gilts will affect their mammary development. However even though advances were made in understanding the nutritional control of mammogenesis in pigs, much remains to be learned before the best nutritional strategy to enhance mammary development can be determined. You can refer to the London Swine Conference Proceedings to find the full article by Chantal Farmer. Proceedings can be found at www. londonswineconference.ca.

If you would like to watch presentations from the London Swine Conference, videos will be uploaded in the near future to the London Swine Conference YouTube channel. Find the link at the website above.

Summarized by: Ava Lass Summer Livestock Assistant, Swine

OPIC Career Days

Ontario Pork Industry Council (OPIC) is hosting three career days this summer:

HR – Legal Rights and Responsibilities

Review of agricultural employment regulations, employees & technology, terminating employees Monday June 10, 2019, Exeter Arena, Exeter Ontario, 1:30-4:00pm \$25.00 per person or \$20.00 for OPIC members

Health and Safety Days

Ministry of Labour, WHIMIS, barn fire safety, rural property rights, fire extinguisher training, animal & people safety. Both Health and Safety days are the same content. Wednesday July 10, 2019, Waterford Community Center, Waterford Ontario 9:00am-4:00pm Tuesday July 16, 2019, St. Joseph Catholic Church, Parish Hall, Listowel Ontario 9:00am-4:00pm \$50.00 per person or \$40.00 for OPIC members

The career days are suited to farm managers, barn managers and barn employees. Participants will be provided with everything needed to complete the course, and a lunch. **Registration is required as there**

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are limited spots available.

To Register Contact Donna Kaczmarczyk: **Tel:** 519-272-1532 **Fax:** 519-272-2215 **Email:** dkaczmarczyk@ southwestvets.ca. Watch the OPIC website for more Career Days to be posted: www.opic.on.ca.

A Report on Previous Seminars

For some time the Ontario Pork Industry Council careers team has acknowledged that human resources and training for Ontario hog farms was an item of interest and importance. OPIC has been working on ways to determine the best steps moving forward to help support and provide the industry and its producers with helpful resources. The team was challenged to narrow the scope of the training, take the issues step by step, and let the courses progress naturally with open conversation.

The first seminar held for the HR Speaking series was mainly focused on Temporary Foreign Workers. This session had industry experts present on the process, best practices and first hand experience with the TFW program. The OPIC careers team has also created a guide booklet available to all participants.

The remainder of the previous HR Speaking series were focused on employee recruitment and management support for producers and industry partners. Two of the speaking sessions were focused on employment retention and managing employees. Industry leaders presented their best practices for keeping and attracting top candidates. The meetings also discussed processes for terminating employment and dealing with challenging employees.

The "Legal rights and responsibilities" seminar was a slightly different session where an agricultural

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employment lawyer outlined the requirements under the seven existing regulations, using examples of real life situations where the employment act applies to agriculture. Participants also received a Manual on all the employment regulations that apply to the pork industry – this collaboration between Ontario Pork and OPIC last year provided a great level of resources for Ontario pork producers.

The "Health and Safety" series was a full day event that was created to cover a wide variety of concerns and training for barn managers and owners. The sessions included the Ministry of Labour training, WHIMIS certificate training, fire extinguisher hands-on demonstration, barn fire safety and prevention, rural crime and property protection, and finally animal and human health concerns in the barn. It was a jam-packed day and both days were sold out last year and will be offered again this coming year.

Feedback from the Health and Safety training days identified that First Aid emergency training would be very useful for Ontario pork producers. OPIC has now worked with a first aid trainer to create a "hog specific" emergency first aid training program and has certified 59 people so far this year.

With information from Andrea DeGroot, OPIC. For more information visit www.opic.on.ca

Toys for Group Housed

Both the Code of Practice for the Care and Handling of Pigs and the new Canadian Pork Excellence program require that pigs of all production stages be provided with enrichment. In 2018 we included two different articles on enrichment for pigs in Pork News & Views; the first in August 2018 called "Environmental Enrichment to Improve Pig Health and Performance" and the second in December 2018 called "Enrichment for Nursery Pigs". I highly recommend reading these previous articles if you have not yet done so!

As producers and industry representatives have become more aware of enrichment requirements, and more commercial products have become available as 'pig toys', we began receiving questions such as "what is the best enrichment option for my pigs?", "can I use commercial pig toys with group housed sows?" and "how long do commercial pig toys last?".

Every barn is different, and what works for one may not be the best option for another. Producers need to evaluate all possible options and determine what they would prefer to use. For example, natural items such as wood blocks can make great enrichment items for sows, but they can also cause some splintering and could potentially end up in the manure pit or caught in the sows' mouth. Many producers use wood successfully, whereas others have had issues. Other natural options include rope or burlap, which pigs of all ages love! However, as pigs can be guite destructive, they do not last very long (although they are much cheaper than commercial toys). Since natural items tend to not last very long, many producers are considering the use of commercial toys. They cost more but may last longer.

We couldn't find a lot of information on commercial toys for group housed sows, so we decided to test a few different ones out on farm. With the help of a South Western Ontario producer, and donated toys from several different companies, we installed commercial toys into a sow barn with electronic sow feeding and monitored how long the toys lasted, general interest levels in the toys, and if there were any challenges encountered with the different toys. Table 1 shows the different toys that were installed in the barn.

The barn had 2 large group pens, 150 gilts in one pen, and 240 sows in another. In addition to that, we also used a few smaller pens containing 10 gilts or sows located beside the large group pens. The farm has Topigs sows and DNA semen and a Nedap ESF system. Three toys were suspended in the large sow pen, and 2 toys were suspended in the smaller gilt pen, all in open areas of the pens away from feeders and drinkers. Single toys were suspended in the small pens, with 2 toys suspended in the gilt training pen (one on each side of the ESF training system).

Toys were suspended from ceiling trusses using 1/4 inch zinc chain, 4" eye screws (5/15") and 1/4" guick links. Toys were attached to 2' of chain using a quick link. This was then attached to 5' of chain hanging from the ceiling. By using a quick link 2' above toy height, the toys could easily be adjusted up or down, and removed if needed, without having to reach the ceiling. Shortly after the trial began, quick links at toy level and mid-chain were replaced with carabiner style clips, as sows were able to loosen the quick links easily. Approximate cost for the hanging setup (chain, eye hook and links) was \$28 per toy, which is reusable long-term.

Barn staff were asked to observe interactions with the toys daily and keep records of how long the toys lasted. They were also asked to record any challenges they came across with the toys.

Results:

<u>Bite-Rite Blue</u>: This toy was installed in the large sow pen, as well as in one side of the gilt training pen. The sows used this toy and groups were observed interacting with it

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multiple times daily. When it was first installed, the chew sticks lasted about 3 weeks, at which point they were replaced. When replaced, they lasted only 2 days, as the sows had figured out they could easily destroy them. The cone itself held up well throughout this time, but barn staff were worried if there were no chew sticks left, the cone wouldn't hold up for long.

Porky Play: This toy was originally installed in a small pen with approximately 10 sows, as well as in the gilt training pen. Barn staff noted that the pigs were not interacting with this toy very often, possibly due to lack of space in the pens for pigs to play properly. The toy was then moved to the large sow pen where it held up well; however, barn staff reported it was used less frequently than some of the other toys available to them. The sows did play with the chain hanging below (attached to) the toy.

<u>Tri-Star</u>: This toy was installed in the large gilt pen. Within the first hour of putting the toy in the pen the

gilts were able to remove all of the chew sticks from the central disc. The barn staff decided to leave the chew sticks off of the toy as they didn't want them ending up in the manure pit. The gilts regularly interact with the disc portion of the toy and the chains hanging from it. Sows can chew and bite the toy, and at the time of writing this article it has held up for 3.5 months and is still in good condition.

Yellow Ball: This toy was hung in the large sow pen. The toy comes with a plug at the top, but we drilled a small hole in the bottom and then used airplane cable to create a hanging system through both of the holes, which was attached to the chain above. For the first week or so the sows were very interested in the ball, as they could toss it up in the air and play with it as a group. Over time interest levels decreased, likely because they could not chew or bite it. However, there were always some pigs that still played with it. At the time this article was written the ball was in great shape, 3.5 months after it was added to the pen.

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Small Ball (Anti-Bite Ball): This toy was hung in the large gilt pen, and it came detached from the chain within the first hour of hanging. The staff re-tightened it and it has remained in place ever since (3.5 months so far). The usage for this toy is about the same as the yellow ball and Tri-Star toys, used moderately by the gilts. The gilts are able to put the entire ball into their mouth and chew it. The rubber has gradually decreased in size, but there are no signs of cracking or destruction, and there is still plenty of ball left.

Easyfix Astro: This toy was hung in the large sow pen. According to the barn staff, this was the toy that got used the most. The toy lasted about 1.5 months before the sows has completely chewed off the rubber projections. The eye hook that the toy came with needed to be bigger and longer with a lock nut in order to successfully hang it without it coming off, something that was easily fixed on farm.

	X		in the second
Toy Name Bite-Rite Blue		Porky Play	Tri-Star
Toy Description	Hanging plastic cone with replaceable rubber chew sticks. Blue size designed for finisher pigs.	Hanging plastic toy with antimicrobial protection. Available in different scents.	Hanging plastic disc with replaceable chew sticks.
Donated By	Glass-Pac	Ketchum Manufacturing	Farmers Farmacy
Retail Price*	Toy = \$44 Sticks = \$6.21	\$21.95	Toy = \$21.95 Sticks = \$1.75

Table 1: different commercial toys that were installed in the group housed sow barn

*Prices may vary from those listed in table

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Easyfix Luna 142: This is the only toy that we tried that wasn't suspended from the ceiling. We put one in with a boar located in the boar station, and the other went into the large sow pen. The sows and boar all actively played with it, however in the group pen only one sow could play with it at a time, so the barn staff preferred the hanging options as more sows could interact with the toys. The Luna lasted for about 3 months in the sow pen. There were two challenges that occurred with the Luna. First, the toy would occasionally get stuck at the window of the boar station, and when sows went to play with it they were being detected as in heat due to their tags being in the RFID zone. Second, sows figured out that they could put the toy in the door of the ESF feeder to keep it open, creating issues with the ESF feeding system.

<u>Future Cow Calf Ball</u>: This toy was hung in the large sow pen. There was very little interest at all in the toy, and thus the barn staff removed it and hung one of the other toys in its place. The sows were also able **Table 1:** (continued) to remove the toy from the chain (which also happened when we hung this toy in a finisher pen on another farm).

General Observations: When the toys were first installed the sows couldn't leave them alone. With multiple different toys in each pen, we watched sows go from one to another to check them all out. Over time interest levels decreased slightly in the toys, but each time a member of the OMAFRA swine team visited the farm there was at least 1 sow playing with each toy. In general, we found that sows and gilts preferred toys with chewable projections over balls or discs, but the balls and discs were also used regularly. The sows liked to be able to get their mouth around the toy to chew it. The barn staff and farm owner were happy with the reaction of the sows to the toys and will continue to monitor durability on the toys that were still in tact after 3.5 months.

So, which toy is best? That is a tough question to answer! We

found that sows played with all of the toys offered to them. Some lasted longer than others, which could be due to the level of interaction and the nature of the shape of the toy. Some of the toys are designed to be chewed and destroyed, whereas others are meant to last longer. We recommend that if you are considering commercial toys for your sow barn, get a few different ones and give the sows some options on which they want to play with!

Acknowledgements:

A huge thank to you Graham Learn from Richmar Farms for providing access to the group housed sow barn, and to barn staff Jan and Yulia for their invaluable assistance with the project. Additional thanks goes to each of the companies that donated toys for the project: Easyfix, Farmers Farmacy, Glass-Pac and Ketchum Manufacturing.

For more information, contact: Laura Eastwood, OMAFRA Swine Specialist laura.eastwood@ontario.ca 226-921-5819

		X	¥	
MS Schippers Yellow Ball	MS Schippers Anti-Bite Ball	Easyfix Astro	Easyfix Luna 142	Future Cow Calf Ball
30 cm polyethylene plastic ball which can be hung or filled with sand and used on the ground.	Small polyurethane rubber ball that can be hung or mount- ed.	Natural rubber suspended toy de- signed for finishing pigs and sows.	Natural rub- ber spiked ball designed to go on the floor of the pen. Green size designed for finishing pigs and sows.	Extra strength vinyl suspended ball designed for group housed calves.
Farmers Farmacy	Farmers Farmacy	Easyfix	Easyfix	Easyfix
\$19.95	\$11.50	\$31	\$51	\$120

Swine Budget – April 2019



Compiled by Jaydee Smith, Swine Specialist, OMAFRA

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Income (\$/pig)	Farrow to Wean	Nursery	Grow-Finish	Farrow to Finish
Market Pig @ 101% of Base Price \$193.73/ckg, 110 index,	103.38 kg plus \$2 premium		•	\$224.51
Variable Costs (\$/pig)				
Breeding Herd Feed @ 1,100 kg/sow	\$13.80			\$15.13
Nursery Feed @ 33.5 kg/pig		\$16.78		\$17.69
Grower-Finisher Feed @ 283 kg/pig			\$85.59	\$85.59
Net Replacement Cost for Gilts	\$2.78			\$3.05
Health (Vet & Supplies)	\$2.16	\$2.10	\$0.45	\$5.03
Breeding (A.I. & Supplies)	\$1.80			\$1.98
Marketing, Grading, Trucking	\$0.90	\$1.50	\$5.76	\$8.33
Utilities (Hydro, Gas)	\$2.35	\$1.38	\$2.13	\$6.17
Miscellaneous	\$1.00	\$0.10	\$0.20	\$1.40
Repairs & Maintenance	\$1.26	\$0.61	\$2.15	\$4.19
Labour	\$6.27	\$1.85	\$4.00	\$12.83
Operating Loan Interest	\$0.31	\$0.40	\$1.32	\$2.09
Total Variable Costs	\$32.64	\$24.73	\$101.61	\$163.46
Fixed Costs (\$/pig)	· · · ·			
Depreciation	\$4.22	\$2.04	\$7.18	\$13.95
Interest	\$2.36	\$1.14	\$4.02	\$7.81
Taxes & Insurance	\$0.84	\$0.41	\$1.44	\$2.79
Total Fixed Costs	\$7.42	\$3.59	\$12.64	\$24.55
Summary of Costs (\$/pig)				
Feed	\$13.80	\$16.78	\$85.59	\$118.41
Other Variable	\$18.84	\$7.95	\$16.01	\$45.05
Fixed	\$7.42	\$3.59	\$12.64	\$24.55
Total Variable & Fixed Costs	\$40.06	\$28.32	\$114.24	\$188.02
Summary	Farrow to Wean	Feeder Pig	Wean to Finish	Farrow to Finish
Total Cost (\$/pig)	\$40.06	\$70.01	\$144.08	\$188.02
Net Return Farrow to Finish (\$/pig)				
Farrow to Finish Breakeven Base Price (\$/ckg, 100 index) includes 101% Base Price & \$2 Premium				
Farrow to Finish Breakeven Base Price (\$/ckg, 100 index) excludes 101% Base Price & \$2 Premium				

This is the estimated accumulated cost for a market hog sold during the month of April 2019. The farrow to wean phase estimates the weaned pig cost for November 2018 and the nursery phase estimates the feeder pig cost for January 2019. For further details, refer to the "2019 Budget Notes" posted at http://www.omafra.gov.on.ca/english/livestock/swine/finmark.html.



DR. JESSICA LAW

STEPS FOR AN ON-FARM PED ELIMINATION

Better Pork outlines the process to follow in consultation with your vet to overcome a PED infection.



biosecurity with the use of the controlled and restricted access zones.

This year, by the first week of May, the Canadian swine industry reported four cases of porcine epidemic diarrhea (PED) in Alberta, nine cases in Ontario and two cases in Manitoba. Early in the year, Quebec also had its first case since May 2015.

These disease events demonstrate that, although Canada is not experiencing a rapidly spreading outbreak, the risk of PED still looms.

Once a veterinarian and producer identify the disease on a premises, they can face a steep learning curve. However, the veterinary community and pork industry stakeholders have worked very hard to share information to help producers, veterinarians and other industry partners avoid the struggles associated with a PED outbreak.

To help with these ongoing education initiatives, I provide some general information below on the steps involved in a PED elimination in a breeding herd farm. Since every situation is unique, it is critical that you consult with your herd veterinarian if you are faced with this challenge.

In the case of a suspected PED outbreak, you and your support team should begin by initiating biocontainment and herd exposure. You may begin this process before you receive a lab diagnosis, as the technicians can take anywhere from 12 to 48 hours to confirm diagnosis after you collect samples. But the sooner the work on farm begins, the sooner you can eliminate the virus.

The biocontainment process includes, but is not limited to, stopping movement and cancelling any scheduled visits and maintenance work. Farmers should also avoid feed deliveries and deadstock pickup for as long as possible or establish a new form of deadstock disposal such as burial.

To enhance biocontainment, it is valuable to review the fundamentals of biosecurity with the use of the controlled and restricted access zones. The controlled access zone is the area around the barn, including feed bins and driveways. The restricted access zone is the barn. Specify the requirements for individuals entering and leaving each zone, such as showering and disinfecting equipment. This strategy can help minimize the movement of the virus off the premises.

A thorough description of these biosecurity principles can be found on the Canadian Pork Council website as well as many of the pork board websites.

Once the vet confirms PED, you should enact full biocontainment, if you have not already.

You must have an up-to-date list of all contacts with whom you deal to minimize the risk of disease spread to other sites. This list should include the feed company, the primary processor, the genetic supplier of both semen and live animals, the agency who handles deadstock pickup and transporters. Consider any other suppliers or processors who may come into contact with your pigs, farm or refuse.

The provincial pork board and/or provincial government may help con-



When producers and their vets suspect PED, they must initiate biocontainment and feedback immediately. In the case pictured here, the litter is experiencing scouring caused by rotavirus and/or Escherichia coli, not PED.

tact neighbouring sites to alert them of the risk.

As you begin biocontainment, it is important that you also begin herd exposure. The sooner you start exposure, the sooner normal operations will resume.

Remember, differences will exist between every elimination and the process will not always go as planned. Each veterinarian and producer can have different preferences and challenges that can change the procedure. However, the goals remain the same: mass exposure to the virus followed by a drastic reduction in environmental viral load.

An early, major task is collecting the intestines and scour material from affected pigs. You will use these materials for herd exposure. Often, you will provide them in the form of feedback. The goal is to expose the herd as quickly as possible because the sooner this work is done, the quicker the herd will stabilize.

It is most efficient to use scour material from two- to five-day-old piglets. You should collect the material within 18 hours of the onset of clinical signs, as the virus is the most concentrated at this stage. The virus concentration in these piglets is about 10,000 times higher than in sows. This material offers the best chance of ensuring the exposure is successful.

That being said, it is more realistic that you will collect scour material and intestines from all piglets under 12 days of age that had died or were euthanized.

Your herd veterinarian will establish the herd exposure procedure, but you must ensure you and your staff (if applicable) clearly understand the process.

If the work is done correctly, you will ensure all animals are exposed at the same time and that they stop shedding around the same time. By following best practices, you can also ensure your sows develop lactogenic immunity, meaning the antibodies that the sows transfer to their piglets through colostrum and milk.

You should record evidence of clinical signs of PED, such as anorexia, vomiting or diarrhea, on individual sow cards. You can review this information with your herd vet to help ensure the exposure was successful. You can individually test animals that did not display clinical signs of PED and re-expose them to the virus if necessary.

Some sows will show very few clinical signs, if any, despite being exposed multiple times. You can use laboratory testing to determine if you adequately exposed these sows.

To avoid introducing naïve animals into the herd after the outbreak, which could result in another break, you should bring gilts in during or before the exposure period. Otherwise, strict herd closure is advised until shedding has come to a halt.

After you administer feedback to all pigs on site, you must remove the primary source of the virus: suckling piglets with no immunity. Most producers, in consultation with their herd vets, will euthanize any piglets less than seven to 14 days of age. Farmers will wean any older piglets that are not showing clinical signs into the nursery, if there is room.

It is recommended to remove young piglets because of the sheer amount of virus they produce. The cutoff age for euthanasia will vary with space availability and the industry's experience. The decision-making strategies may also evolve as more data is published.



Lactogenic immunity, meaning the antibodies that the sows will transfer to their piglets through colostrum and milk, is a key component of sustaining piglet viability after a PED outbreak.

The younger this cutoff age is, the tougher it is for these piglets to overcome the disease. Some producers and practitioners have regretted opting to save these very young piglets. PED is a financially onerous disease, and this can be a tough financial and emotional decision.

Euthanizing piglets is extremely unpleasant and psychologically challenging. Usually, farrowing staff focus on saving as many piglets as possible. So, it can be emotionally difficult for them to have to focus on euthanizing piglets. To help make this work less emotionally draining on the entire team, consider having staff rotate between this task and others in the operation.

At this stage, you must make yet another tough decision: whether you will abort sows or euthanize piglets as they are born to reduce the environmental contamination from PED that could be produced by these piglets. The next two to three weeks' worth of litters will not survive as the sows and gilts will have not developed adequate immunity to protect their piglets.

It is difficult to decide to abort sow pregnancies within three weeks of farrowing, especially as a high number of liveborn piglets from the sows aborted in their final week of pregnancy will need to be euthanized. However, some producers and veterinarians say this task is not as mentally and physically exhausting as euthanizing all piglets when they are born.

All the difficult tasks involved in disease elimination and the process of mass euthanasia can lead to severe emotional, psychological and financial stress. Support services are available to help.

In Manitoba, for example, producers can access the Manitoba Farm, Rural & Northern Support Services at 1-866-367-3276 or supportline.ca. Similar support lines are available in other provinces; visit domore.ag/ resources for a list of national, provincial and territorial mental health websites and crisis lines.

Please do not hesitate to reach out to one of these services if you are dealing with a disease outbreak.

Finally, in addition to working directly with your livestock, you should also be tackling the cleaning and disinfection of the site.

In the next edition of *Better Pork*, I will review the tasks associated with cleaning, disinfection, biosecurity and other aspects of PED elimination that must not be overlooked. **BP** Dr. Jessica Law is a veterinarian with Prairie Swine Health Services in Red Deer, Alta.

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BEST ENRICHMENT OPTIONS FOR SOWS

While most research focuses on grow-finish pigs, enrichment also increases sows' positive behaviour.



Straw is an excellent enrichment tool for sows who can both manipulate and eat the roughage.

On Canadian farms, interest in enrichment has grown recently due to changes in the Code of Practice for the Care and Handling of Pigs. The animals "must be provided with multiple forms of enrichment ... to improve the welfare of the animals through the enhancement of their physical and social environments," the requirements say.

This change, along with increasing adoption of group housing for sows, led a team of Canadian researchers, directed by Dr. Laurie Connor at the University of Manitoba, to study how best to provide enrichment to sows in groups.

Most studies on enrichment have focused on growfinish pigs because this is the stage when most damaging behaviours, such as tail biting or flank sucking, appear. The effects of these behaviours can be devastating.

A few studies have looked at sows. Feeding fibrous materials, such as straw or hay, is best, the general conclusions say. Pigs are highly attracted to items that are both manipulable and consumable and, for feed-restricted sows, the increase in gut fill is a bonus.

On European farms, producers are required to provide 300 grams (about half a pound) of fibre per sow per day. But North American producers are reluctant to provide straw, largely due to biosecurity concerns and the potential for straw to clog liquid manure systems. As a result, Canadian studies have focused on object enrichments that could be provided in slatted or partially slatted pens.

Between 2014 and 2017, researchers conducted three studies to evaluate sows' interest in a variety of enrichments, including wood suspended on chains, cotton rope, loose straw and a dispenser for chopped hay. The scientists tested the enrichments on two research farms, one with free-access stall housing and one with electronic sow feeders (ESFs).

The way that the researchers presented the items to the sows also varied. For example, the scientists compared the provision of one constant enrichment to a rotation of three enrichments, or varied the number of materials provided at once from one to three enrichments per group of 28 sows.

While sows interacted with all the enrichments, not surprisingly, the animals most preferred the loose straw (placed on a solid floor). Not only was the straw consumable, it spread out over a larger area, allowing more animals to interact with it at the same time compared to hanging enrichment materials.

Between the object enrichments, sows slightly preferred rope over wood enrichment. Rotating multiple enrichments resulted in more sow interaction than the provision of a single enrichment, confirming that sows appreciate a degree of novelty in their daily routine.

Dominant sows in a group may obtain greater access to enrichment than subordinates, the researchers hypothesized. So they observed the effects of sows' social status on enrichment use and stress physiology.

In both free-access stalls and ESF housing systems, dominant and subordinate sows used the enrichments equally. However, in the ESF barn, subordinate sows had higher cortisol levels than dominant sows, suggesting greater social stress in the ESF system.



Wood on a chain can be used as an enrichment material, provided the wood is untreated.

Sows in the ESF barn also used the enrichments about three times more frequently than those animals in freeaccess pens. Because the two barns had different management and genetics, it is impossible to know what caused this difference. Sows in ESF barns are generally more active, but genetic differences cannot be ruled out and should be studied.

In one of the studies, researchers provided sows with chopped hay in small hoppers in the free-access pens, comparing this enrichment to wood enrichment materials. Again, the use of fibre attracted more sows but, because it was held in a small hopper, only a few sows could access it at once.

Dominant sows had more access to the hay feeders than subordinates, the researchers found. Scientists observed higher lesion scores on the animals when they had access to chopped hay, indicating that aggression can increase when sows are competing for a more desirable enrichment. So, providing adequate levels of enrichment is important.

Overall, these studies underscore why diffuse and consumable enrichments like straw are both attractive and effective for sows. Providing a few enrichments and dispersing them throughout the pen will help to reduce any negative effects of social status.

Following the trials, multiple farms with group sow housing participated in an extension study. Producers were accustomed to seeing sows lying quietly for most of the day and were surprised to see the sows' strong attraction to enrichments. Most of all, farmers enjoyed watching the sows interact with enrichments.

So, while the production benefits of providing sows with enrichment may be hard to measure, the satisfaction of seeing sows busy and interacting in a positive way is ample reward for some farmers.

Researchers will continue to explore the potential benefits of various fibre sources. Scientists will also look

for practical enrichments that promote sow interaction while posing minimal risk to biosecurity or liquid manure systems. **BP**

The Prairie Swine Centre conducts near-market research that can be applied by the pork industry within a one- to seven-year time frame.



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STRATEGY TO CUT SOW FEED COSTS

This on-farm demonstration examined the use of parity-segregated phase feeding for group-housed sows.



Based on research conducted by Dr. Ron Ball, a retired researcher at the University of Alberta, parity-segregated phase feeding would more precisely meet the amino acids and energy requirements of the gestating sow.

By 2024, hog producers will have to renovate or build new barns to accommodate group sow housing, Canada's Code of Practice for the Care and Handling of Pigs says. Making these improvements presents an opportunity for producers to evaluate which equipment and technology they can implement to have a positive economic effect on their operations and ensure longterm sustainability.

For example, can you consider a phase feeding program for your gestating sows?

To learn more about phase feeding, read below about the results of a recent on-farm demonstration project that evaluated the concept of paritysegregated phase feeding for group-housed sows.

Based on research conducted by Dr. Ron Ball, a retired researcher at the University of Alberta, paritysegregated phase feeding would more precisely meet the amino acids and energy requirements of the gestating sow. Possible benefits include reduced feed costs, improved sow body condition at farrowing, better rebreeding success and prolonged, productive lives of sows.

The savings in feed costs depend on price relationships but, in general, are greater for older sows when wide price gaps between corn and soybean meal exist.

Table 1: Cost reductions of using parity-segregated phase feeding when compared to conventional feeding for the gestation period.

Criteria on a yearly basis		Conventional	Phase feeding	Difference	
Average feed price (2017)	\$/mt	302.70	293.60	-9.10	
Feeding cost	\$/sow	188.73	183.04	-5.69	

Table 2: Difference (\$) between the feeding cost of the parity-segregated phase feeding strategy and conventional feeding under different combinations of corn and soybean meal prices.

Soybean meal prices (\$/metric ton)									
		350	400	450	500	550	600	650	700
	175	-\$3.53	-\$4.46	-\$5.40	-\$6.33	-\$7.26	-\$8.20	-\$9.13	-\$10.06
(uo	200	-\$3.30	-\$4.23	-\$5.16	-\$6.10	-\$7.03	-\$7.96	-\$8.90	-\$9.83
(\$/metric ton)	225	-\$3.06	-\$4.00	-\$4.93	-\$5.86	-\$6.80	-\$7.73	-\$8.66	-\$9.60
met	250	-\$2.83	-\$3.76	-\$4.70	-\$5.63	-\$6.56	-\$7.50	-\$8.43	-\$9.36
	275	-\$2.60	-\$3.53	-\$4.46	-\$5.40	-\$6.33	-\$7.26	-\$8.20	-\$9.13
Corn prices	300	-\$2.36	-\$3.30	-\$4.23	-\$5.16	-\$6.10	-\$7.03	-\$7.96	-\$8.90
d L	325	-\$2.13	-\$3.06	-\$4.00	-\$4.93	-\$5.86	-\$6.80	-\$7.73	-\$8.66
Cot	350	-\$1.90	-\$2.83	-\$3.76	-\$4.70	-\$5.63	-\$6.56	-\$7.50	-\$8.43
	375	-\$1.66	-\$2.60	-\$3.53	-\$4.46	-\$5.40	-\$6.33	-\$7.26	-\$8.20

Using 2017 Quebec grain prices, parity-segregated phase feeding would result in annual savings of \$5.69 per sow compared to conventional feeding programs. Based on 2013 to 2017 prices, savings could vary from \$1.66 to \$10.06 per sow depending on the feed price scenario.

What is parity-segregated phase feeding for group-housed sows? Typically, gestating sows are fed a

single diet, where the nutritional composition is constant for the entire gestation period.

Parity-segregated phase feeding involves the use of two diets to meet the needs of sows at different stages of gestation and parity. The objective of this on-farm demonstration project was to evaluate the effect of paritysegregated phase feeding for gestating sows on feed costs.

More specifically, researchers compared the following feeding strategies

- conventional feeding which involved the use of a single diet (Diet A) for the entire gestation period for all sows
- parity-segregated phase feeding which consisted of using two diets for parity 3 sows and above. From day 0 to 85 (day 0 being the first day of gestation), researchers gave sows Diet B, a diet with lower SID (standardized ileal digestibility) lysine content. Then, from day 86 to the end of gestation, scientists fed sows Diet A, which was the same as conventional feed. Meanwhile, researchers fed parity

1 and 2 sows Diet A throughout their entire gestation period.

In short, it was the diet of parity 3 sows and above during their first 85 days of gestation that differed from the conventional feeding strategy. Parities 1 and 2 received the same diet in both strategies. So, this demonstration was a simplified application of parity-segregated phase feeding.

Using phase feeding for gestating sows housed in groups typically involves the use of an electronic sow feeder (ESF) or a free-access ESF system with two feed lines, allowing for two diets to be fed simultaneously.



The installation of two feeding lines allowed Hog Tied Farms to use two different feeds simultaneously.

SCIENTISTS PARTNER WITH FARMERS

This demonstration was part of the Canadian-wide project entitled "From innovation to adoption: on-farm demonstrations of swine research," led by Swine Innovation Porc. The study aimed to increase the pace of adoption of new technologies and management strategies.

To achieve this goal, we partnered with several hog producers and organizations operating in the sector across Canada. These producers and organizations have agreed to implement new technologies and management strategies, and thus become demonstration sites for these innovations.

"We regularly collect information to better understand the process and challenges of adopting and using new technologies and strategies on these demonstration sites," says Geneviève Berthiaume, senior manager of management and economics at the Centre de développement du porc du Québec inc. **BP**

The period of application of this feeding strategy covers the gestation period, spanning from day 0 (when the sows are inseminated), to the transfer of the sows to the farrowing unit (around the 115th day of gestation).

Effects on feeding costs

Combining both diets (A and B) for parity 3 sows and above allows the parity-segregated phase feeding strategy to achieve a lower feed cost than a conventional feeding strategy. (See Table 1 on page 76.)

Based on 2017 average Quebec feed prices, using a parity-segregated phase feeding strategy would result in a savings of \$5.69/sow/year compared to a conventional feeding program.

Price fluctuations?

As feed prices fluctuate over time, researchers conducted a sensitivity analysis to assess the variation related to corn and soybean meal prices. Considering the minimum and maximum Quebec prices (\$/metric ton) observed between January 2013 and December 2017, the parity-segregated phase feeding strategy has an economic advantage over conventional feeding. Annual savings ranged from \$1.66 to \$10.06 per sow. (See Table 2 on page 77.)

Producer's comments

The team demonstrated this project with the assistance of John Van Engelen, who owns and operates Thedford, Ont.-based Hog Tied Farms.

"I already had the intention of installing a second feeding line further down the road, but this project has made that happen faster than expected," Van Engelen says. "I did not observe any nutritional deficiencies in my sows while applying the parity-segregated phase feeding strategy.

"However, the demonstration only took place over a



short period of time (10 months). I do not think the test was long enough to observe changes in sow body condition and performance."

Van Engelen also mentioned wanting to learn more about phase feeding strategies and even precision feeding to decide on the best program for his herd.

Overall, he had a positive experience and reduced his sow diet cost.

Partners

Swine Innovation Porc funded this project within the Swine Cluster 2: Driving Results Through Innovation research program. Agriculture and Agri-Food Canada provided funding through the AgriInnovation Program, as did provincial producer organizations and industry partners.

We would also like to thank John Van Engelen from Hog Tied Farms in Ontario for participating in the project.

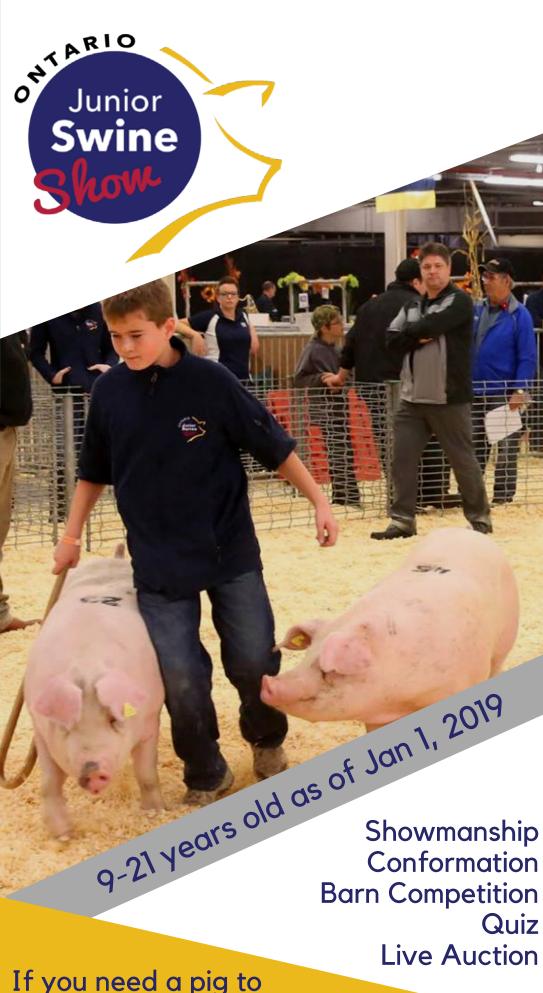
We appreciate the support of Doug Richards from the Prairie Swine Centre in implementing and following up on the on-farm demonstrations. **BP**

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KEEP YOUR SOWS COOL THIS SUMMER

We can follow some strategies in our nutrition programs to help sows beat the heat and humidity.



Sows have a lower surface-to-body mass ratio than growing and smaller pigs and, because of this anatomy, less capacity to lose heat.

Despite the cliché that Canada is a cold country, I was surprised to find my first summer in Canada last year to have such high temperature swings and humidity to match!

Coming from an area of Australia with a mostly dry heat, I did not think Canadian summers would hit me so hard. (It is really the humidity that gets to me, I think.) These conditions made me think about sows, which are our most heat-sensitive pigs, and how they cope.

Pig sensitivity to heat stress in commercial systems is well known. These animals do not sweat and have relatively small lungs for panting.

The "modern" genotypes of pigs produce up to 20 per cent more heat than their counterparts 20 years earlier, a 2003 review by Dr. Tami Brown-Brandl and others shows. If this trend continues, we can expect today's genotype to also have higher heat production.

When a sow is unable to cope with high temperatures and/or humidity, we can observe lower feed intake, early farrowing, higher markers of oxidative stress and seasonal infertility. Piglets from heat-stressed sows may have lower feed intakes, poorer growth and fatter carcasses, recent research found.

The first step to beat the heat is identifying if you have a heat-stress risk. Humidity plays a huge part in the heat index, so the issue is not simply temperature.

When using information on temperatures and humidity causing heat stress, it's also important that you look at recommendations for reproduction animals. This is because growing animals have a much higher temperature and humidity threshold than their reproductive counterparts.

Sows have a lower surface-to-body mass ratio than growing and smaller pigs and, because of this anatomy, less capacity to lose heat.

Producers can access a variety of apps available online to calculate heat indices and thresholds for different animals.

The second step is to see what management practices and infrastructure resources we can use to help reduce the temperature and humidity. These tools include ventilation, density, feeding schedule and water flow.

The third, and probably most forgotten step, is to ask your nutritionist to formulate diets to help your sows cope.

Here, we share some nutritional strategies to help address heat stress in sows.



The most important nutritional factor for maintaining a sow's body condition is energy.

Increase diet density

The most important nutritional factor for maintaining a sow's body condition is energy.

Ideally, nutritionists will calculate the total amount of energy sows need during gestation. The nutritionist should consider how much a sow will/can eat and formulate diets so that needs are equal to supply.

However, under high temperatures and humidity, pigs eat less. So, increasing diet density using readily available energy sources seems to be the next logical step.

If you know, for example, that your sows will eat 10 per cent less in the summer, why not get ahead of the heat and increase diet density by 10 per cent? This strategy is particularly important for lactating sows so that the animals do not lose too much body condition due to lower feed intakes over the summer.

Reduce fermentable load

Using commodities such as soybean meal and canola as protein sources is cheap and effective. However, the amount of heat that sows produce to use these proteins is relatively higher than the amount they produce to use synthetic amino acids.

It's also common for producers to

use higher levels of fibre in sow diets during cooler times to keep sows satiated and warm. Fibre quality and level is important in the prevention of gestational diabetes and constipation. However, under times of heat stress, we may not want to have such high levels of fibre in sow diets.

Managing oxidative stress

Heat and oxidative stress go hand in hand. To help the sow combat this type of stress, it is commonplace to bolster the antioxidant supplements in feed.

When thinking of antioxidants, most people will consider the common vitamins such as C and E or even selenium. However, using other antioxidants, like alternative polyphenols, has seen success.

When applied appropriately, antioxidants can maintain feed intake in lactation and support body condition.

Use of additives to support gut barrier function

Heat exposure, even for as short as two to six hours, can reduce intestinal integrity, Iowa State University researchers have found.

This situation, in turn, may increase pigs' susceptibility to patho-

gens and toxins.

Use of feed additives to support gastrointestinal health (i.e. organic acids) may be wise, particularly in low sanitary conditions and in instances where toxins may pose a challenge.

Final thoughts

While the list of nutritional strategies in this article is not exhaustive, it serves as a good starting point to engage your swine nutritionists in a total nutrition, management and health solution.

One last thought on heat stress has to do with the way we house our nurse sows. For the good of the piglet, we usually keep the barn temperature above 20 C (68 F).

In these conditions, though, are we putting our sows under heat stress year-round? If so, how does that affect how we should feed them to target body condition out of the crates? **BP**

Meeka Capozzalo is a swine nutritionist with Trouw Nutrition Canada. She completed her PhD in swine nutrition in Australia before moving to the Netherlands to work for Trouw Nutrition in a global role. In 2018, Meeka moved to Ontario to work as a swine nutritionist on the Trouw Nutrition Canada team. VENTILATION

by DAVE

STEWART



VENTILATION FOR GROW-FINISH BARNS

When building or retrofitting a swine facility, producers should weigh their ventilation options.



To incorporate a dual ventilation system into a new build or renovation, producers will need to work with industry experts.

Globally, pork producers and industry reps continue to discuss the options for ventilation systems in confinement barns.

We have watched the development of innovative equipment on both the mechanical and the natural ventilation sides of the equation.

Mechanical ventilation provides a precise and consistent air flow. This type of system, however, can be costly to operate and somewhat noisy. The system will also require maintenance sooner or later.

Natural ventilation, as traditionally understood, can exchange large volumes of air for peak summer ventilation. This system produces no noise and requires a minimal amount of maintenance. The effectiveness of natural ventilation, however, varies by the weather conditions.

Today's pork producers have a

third option, commonly known as "dual ventilation," to consider for the new or renovated grow-finish barn. This hybrid system brings together the best of the mechanical and natural ventilation systems.

New grow-finish barns typically have several rooms linked by a common hallway. In most cases, producers batch populate the rooms and select predetermined ventilation rates for mechanical systems based on season and growth rates.

To incorporate a dual ventilation system into a new build or renovation, producers will need to work with industry experts. Together, they can ensure the ventilation system provides adequate egress of fresh air to the inlet system and sufficient attic ventilation to meet building code.

By incorporating the precision and reliability of the mechanical side, we

would typically use precisely sized and positioned ceiling inlets to provide virtually all the air grower pigs and market-weight finishers require between mid-October and mid-March.

Sidewall-mounted fans or, more commonly, chimney fans provide the exhaust during cold weather. Each room has a conventional, supplemental heat source to start growers in the winter.

The summer natural ventilation system has insulated vertical sliding panels that come into open range at the producer's selected temperatures. This setup provides up to the maximum air exchange rate to maintain the temperature set point. The panels open to allow the intake fans to turn off but the system still meets the required ventilation rates.

Producers, in consultation with ex-

Comparison of ventilation systems						
Mechanical ventilation	Natural ventilation	Dual ventilation				
 accurate ventilation rates customizable by season ideal for sensitive pigs expensive to operate 	 healthier environment (benefits of being in the open air with the protection of a roof) minimal operating costs dependent on weather 	 healthy and accurate customizable by season reasonable operating costs ideal for grow-finish barns 				

perienced ventilation experts, must select panels that will seal tightly to the building when the fans are operating. This setup ensures enough negative pressure for the inlets to work and eliminates any unwanted air leakage from the perimeter of the panels.

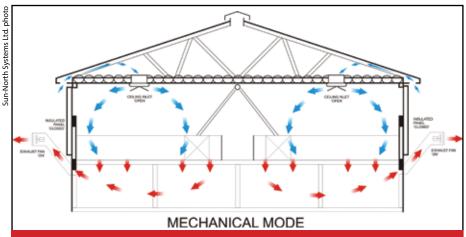
If the temperature falls, as it often does at night, the panels will close, and the inlets and fans will automatically cycle back on. On average, producers program the systems to cycle on if the temperature falls 8 degrees below the barn's set point.

During the heat of summer, producers typically keep the sidewall panels fully down on a room full of mid- to heavy-weight hogs. If the interior temperature exceeds a selected set point, the exhaust fans can



The recent improvements in controls allow us to take advantage of the benefits of both natural and mechanical ventilation systems.

automatically turn on to increase air flows and air speeds. In the process, these fans add to the cooling effect in the room.



This diagram shows the mechanical mode of ventilation in a grow-finish barn. This system uses pit fans but producers could opt to use sidewall or chimney fans instead.

NATURAL MODE This diagram shows the natural mode of ventilation in a

grow-finish barn. This system uses insulated panels on the sidewalls to allow nature's breeze to do the ventilation for you.

The recent improvements in controls allow us to take advantage of the benefits of both natural and mechanical ventilation systems. The dual-vent controls can work forward (as the temperature increases) and backward (as the temperature decreases) based on variances in the set point in the barn and fluctuations in the outside temperature.

Within a single day, with a group of hogs of any size, the system could switch from running mechanically to naturally, or vice versa, depending on the temperature set point and the outside temperature.

Pork producers can select from a variety of options when looking for the ventilation system that works best for them. Understanding the variables at play and working with an experienced ventilation company can significantly influence the bottom line of the operation.

Not every operation is best served with either a natural or mechanical system. Ask your ventilation provider about the benefits of dual ventilation and consider all options thoroughly to determine the best fit for your operation. BP

Since 1976, Dave Stewart has been *directly involved with agricultural* ventilation in both Canada and the United States. His knowledge extends from system design and sales to equipment manufacturing and installation. Stewart is experienced with both mechanical and natural ventilation equipment and controls.



WILL WE FACE A MEAT PRODUCTION DEFICIT?

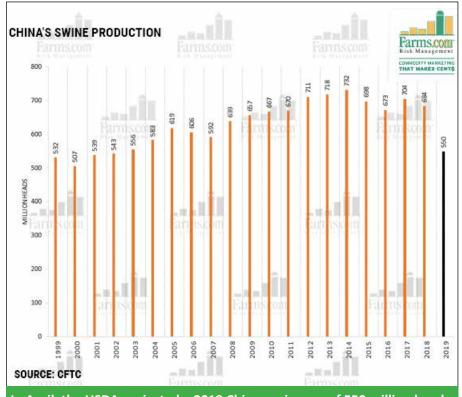
The ASF challenge and China's strong appetite for meat are pressuring the world's production systems.



In 2019, we might see a global animal protein deficit of 12.5 million metric tons (13.75 million short tons) and increased global trade, which would increase farmgate and consumer prices.

The African swine fever (ASF) epidemic continues to wreak havoc on China's swine industry which houses more than half the world's domestic pig population. Though the Chinese herd is in the eye of this outbreak storm, the swine populations of many other major porkproducing countries, like Vietnam, Mongolia, Bulgaria and Romania, have also been hit.

As of late April, China had culled



In April, the USDA projected a 2019 Chinese pig crop of 550 million heads, which is 162 million heads lower than the October 2018 projection.

about a million hogs due to ASF, the country's ag ministry estimated. Market analysts widely believe this number is grossly under-reported, however.

In March, China's total hog herd had dropped 18.8 per cent year over year and the sow herd had fallen 21.1 per cent year over year, the country's ag ministry reported. In total, over 8 million sows have died or been culled in a year. This figure eclipses the entire American sow herd by about 1.6 million.

The 2019 first-quarter pork production was down 5 per cent, the Chinese government estimated. It predicted that second-quarter production would fall sharply.

In its April projection of China's ASF situation, Rabobank expected the country to experience a 30 per cent loss in pork production in 2019. China will lose – either through death or culling because of ASF – between 150 and 200 million hogs, the bank forecast. A loss of that magnitude would be 30 per cent more pigs than what the United States slaughtered in 2018 and nearly as large as Europe's annual pork supply.

Though, in April, the USDA projected a 2019 Chinese pig crop of

550 million head, the total could be closer to 360 million.

Industry reps found ASF on China's Hainan Island, which is 280 miles (450.8 kilometres) south of mainland China, an April 19 Reuters article said. The Chinese ag ministry considered the island to have a natural barrier against the disease, so the reports that ASF is present there indicates that it is truly out of control.

Chinese pork prices will jump 70 per cent in the second half of the year, private analysts project. More than 80 per cent of farms are deciding not to restock their herds, China's ag ministry said.

ASF has become a global swine epidemic. In Vietnam, for example, the disease could cause production losses of over 10 per cent. The country is the world's fifth-largest pork producer and a significant supplier to China. Europe has reported many cases, too. Other countries affected include Cambodia, Mongolia and Tibet.

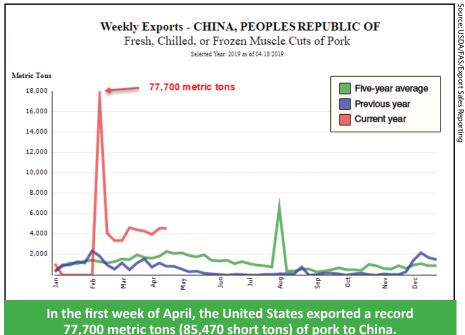
In April, officials found ASF in South Africa where it was originally discovered many years ago.

That month, the U.S. National Pork Producers Council (NPPC) cancelled the World Pork Expo 2019 as a precaution against ASF spreading to North America. This decision shows how seriously the industry views the risk. Producers, meat processors and government officials want to keep the disease out of the United States because ASF cases would likely close export markets.

China must import pork soon to satisfy its massive consumer appetite. The United States, Canada, Brazil and the European Union could benefit from the increased demand.

The USDA estimated 2018 Chinese pork production at 54.04 million metric tons (MMT) or 59.44 million short tons. This figure is expected to drop by 5.54 MMT in 2019.

Hypothetically, if China replaces that year-on-year drop with imports and if the U.S. receives a quarter of that business, America's monthly exports to China could be 115,416 metric tons (126,958 short tons). Since 2012, U.S. exports to China



have ranged between 80,000 to

220,000 metric tons (88,000 to 242,000 short tons) annually.

In the first week of April, the United States exported a record 77,700 metric tons (85,470 short tons) of pork to China. The total amount of pork that the United States could export to China is highly uncertain given the supply gap that exists in ASF-affected China and the lack of insights on how much of that meat China would be willing to buy from the United States.

The global export demand for pork will undergo a long-term upward shift but domestic production may not be able to immediately keep up with that increased demand. European and American producers, for example, likely will not expand, as market analysts expect banks will be slow to finance growth until significant profits have been achieved.

Pork exports cannot solve this global protein deficit alone. If all the global pork exported went only to China, the gap would still not be filled. Other meat imports, such as chicken and beef, will have to be part of the solution.

In 2019, we might see a total global animal protein deficit of 12.5 million metric tons (13.75 million short tons) and increased global trade, which would increase both farmgate and

consumer prices.

In 2018, China officially purchased more than a million metric tons (1.1 million short tons) of beef for the first time. In the process, China overtook the United States as the world's biggest beef market. Chinese imports of mutton and lamb also showed significant gains last year.

China would likely lift a ban on U.S. poultry as part of the country's trade deal renegotiations with American officials. Also, rumours suggest that the U.S. is pressing China to drop its ban on pork produced with ractopamine, which is a pigfattening drug. The U.S. has 40 to 50 per cent ractopamine-free pork while Canada is almost 100 per cent free. If the ban is lifted, it would open the potential for exports from the remaining 50 to 60 per cent of U.S. pork production.

American export demand has served as the prime driver for the massive rally in hog prices from mid-February to early April. BP

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SECOND LOOK



PIGGING OUT ON FACTS ABOUT SWINE

This month, we set the record straight on some common phrases related to hogs.

Paul Harvey, a well-known radio announcer, would say "and now for the rest of the story" and then provide his listeners with key elements held back from the initial part of the story. This month, we're going to dive into the "rest of the story" regarding misconceptions about the pig.

Several common phrases refer to the pig, including sweat like a pig, filthy pig, dumb pig, don't be a pig and fat pig. But let us fact-check them.

First, "sweating like a pig" would mean you aren't sweating at all! Pigs have very poorly developed sweat glands and, as a result, don't sweat. Rather, the saying is derived from the iron smelter business and refers to a pig iron being cool enough to be safely handled.

The phrase "filthy pig" is off the mark, too. Given the choice, pigs are clean animals. Even newborn piglets will move away from their sleeping and eating areas to go to the bathroom soon after birth.

In contrast to the phrase "dumb pig," these animals are among the smartest of all domesticated animals, beating out dogs. Indeed, research suggests pigs are more intelligent than some primates.

Pigs also have a strong sense of smell. While people only have about 395 olfactory receptors, hogs have about 800.

Pig snouts work similarly to our noses but the large, round discs of cartilage at the ends give them added skills. The design of their snouts allows them to effectively root around in the ground while maintaining their strong sense of smell.

The animals can find truffles hidden underground and police have put hogs to work finding drugs.

Pigs' taste buds are more sensitive than humans' taste buds, too. In contrast to our 9,000 taste buds, these animals have 15,000. But we have



In contrast to the phrase "dumb pig," these animals are among the smartest of all domesticated animals, beating out dogs.

similarities in palates: like many of us, hogs prefer sweet flavours over sour ones and will turn away from bitter food.

Sticking on this theme of diet, have you ever heard someone use the phrase "don't eat like a pig," when teasing another person about how much they eat?

Well, in contrast to the growing problem of human obesity, a big challenge in pork production is getting pigs to eat enough. Indeed, some researchers focus on trying to get the animals to eat more.

In addition, pork is much leaner today than it was 20 years ago. Now, pork loins are about as lean as skinless chicken breasts. A threeounce (85-gram) portion of grilled skinless chicken breast has 139 calories, while a same-sized portion of pork tenderloin has 120 calories. Because of the reduction in fat, pigs have become very efficient feed converters and pork production is more environmentally friendly.

Hogs do have a sensory downfall in comparison to humans: their eyesight is worse than ours. They make up for this shortcoming with their squeal, however. The animals can scream up to 130 decibels. That sound is louder than a diesel engine (about 80 decibels) and even a jet engine (around 120 decibels).

This rundown of facts on hogs is particularly fitting as 2019 is the Year of the Pig. It is the twelfth of all zodiac animals and, in Chinese culture, pigs are the symbol of wealth.

And that's "the rest of the story." BP

Richard Smelski has over 35 years of agribusiness experience and farms in the Shakespeare, Ont. area.

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